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BRITISH MEDICAL JOURNAL

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SATURDAY FEBRUARY 4 1961

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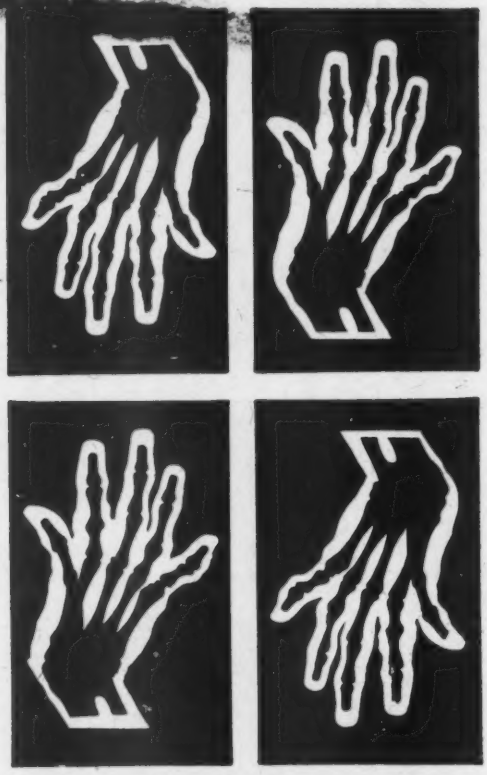

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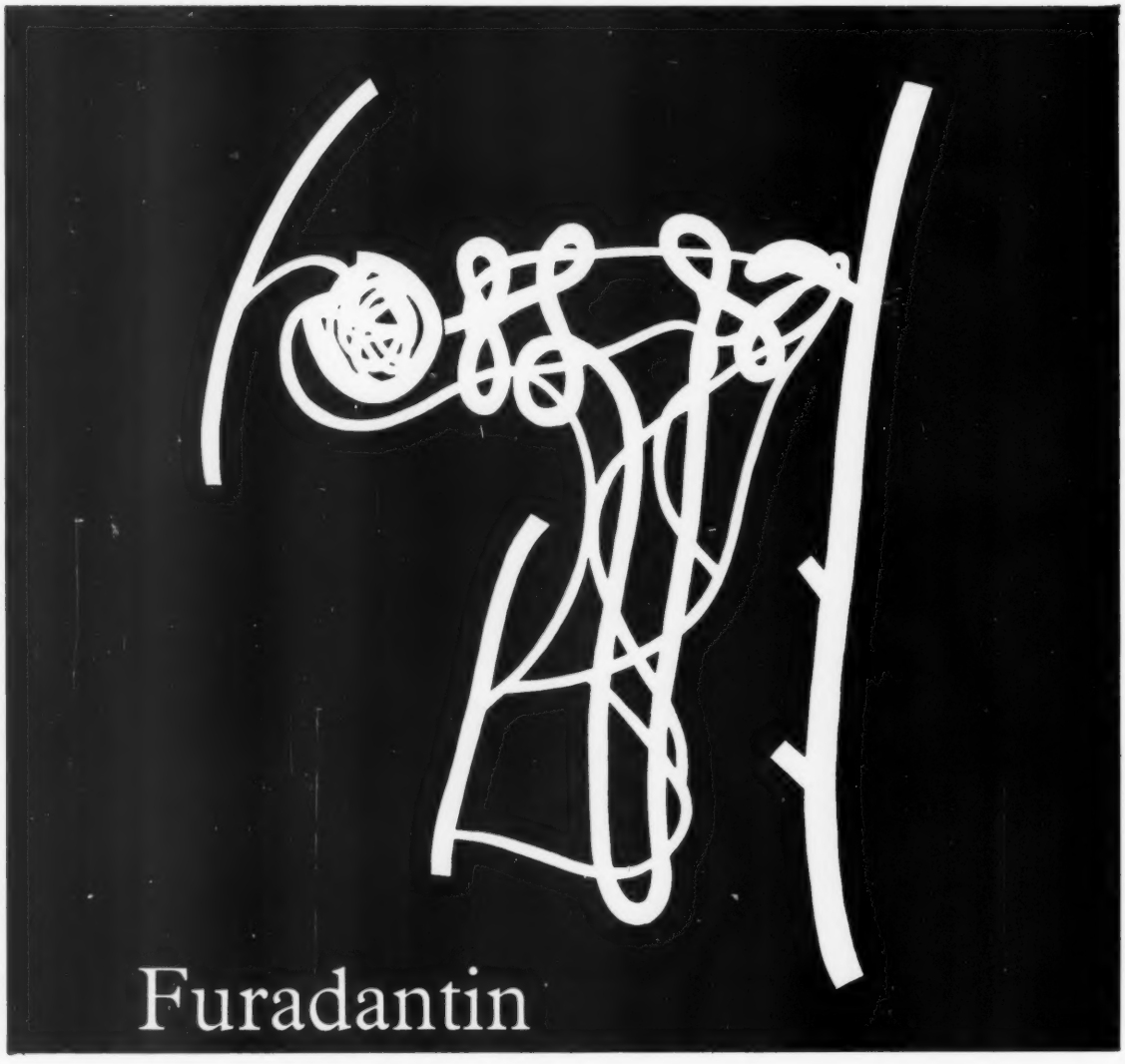

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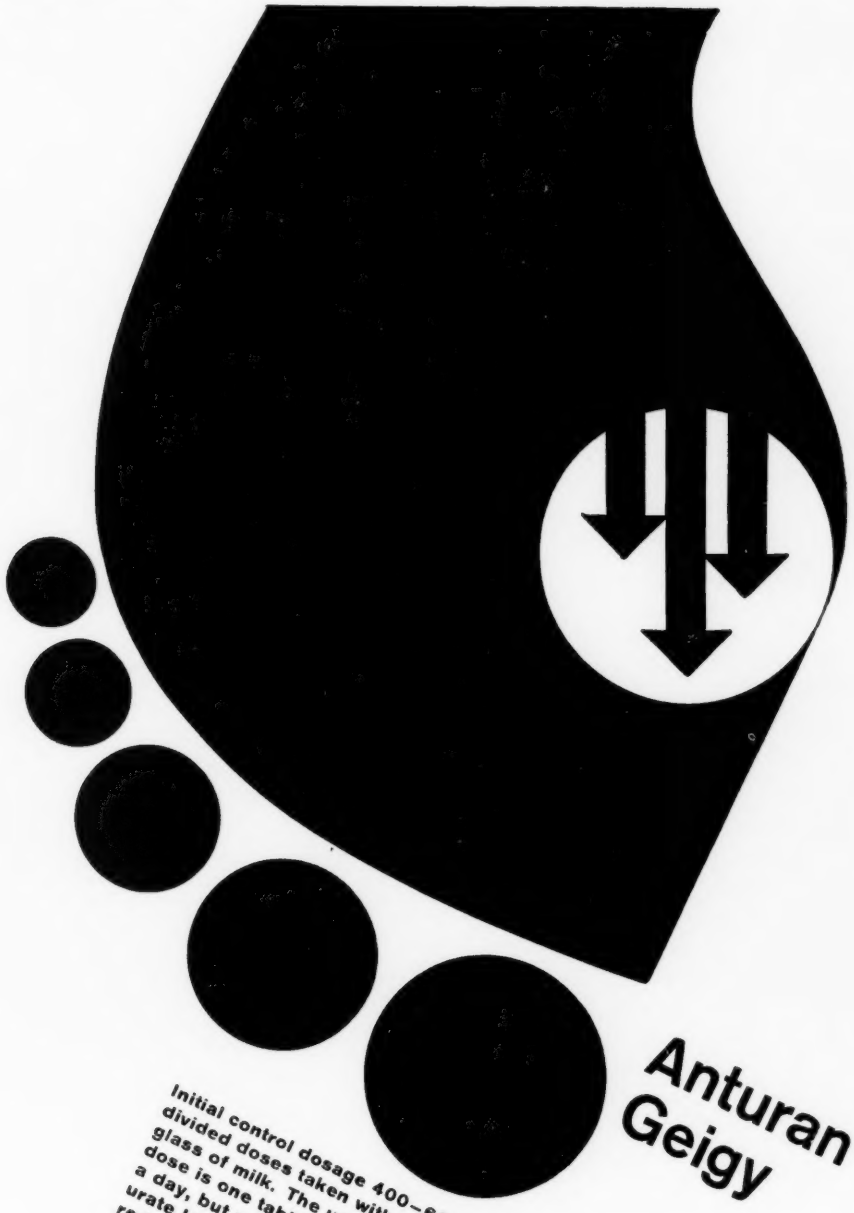

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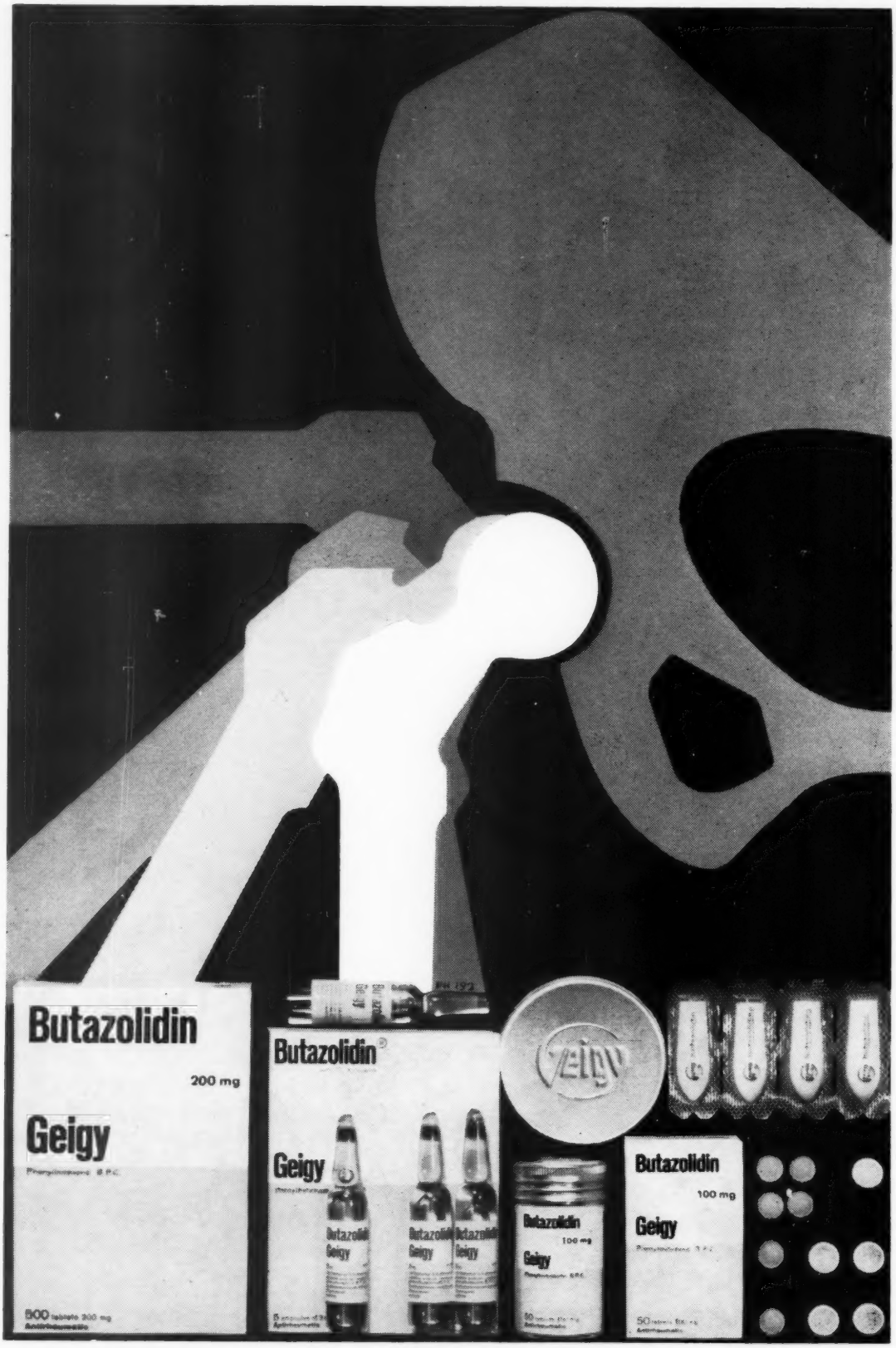
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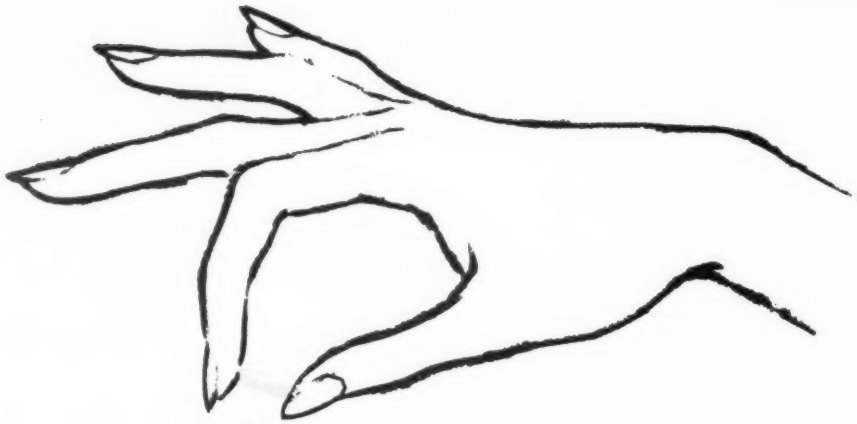

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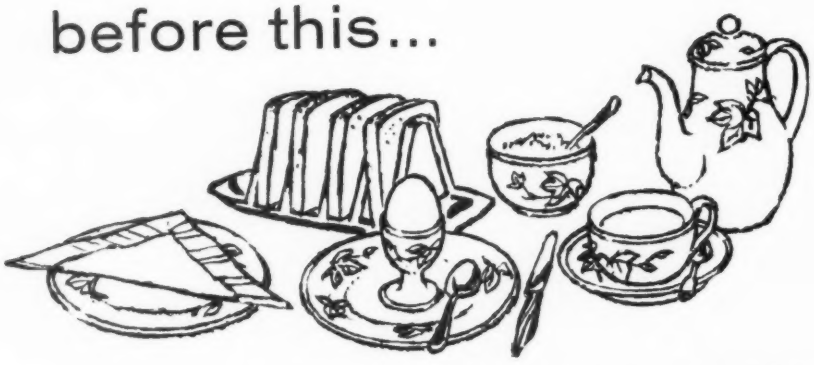

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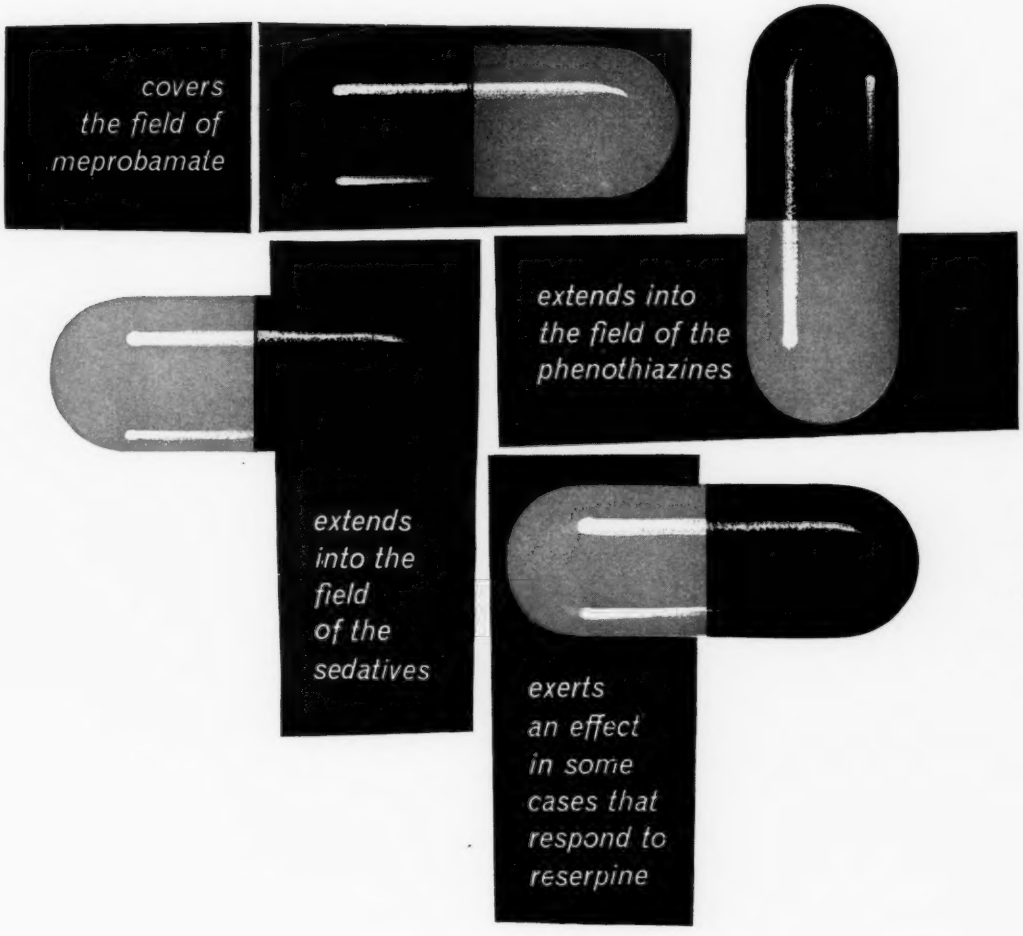
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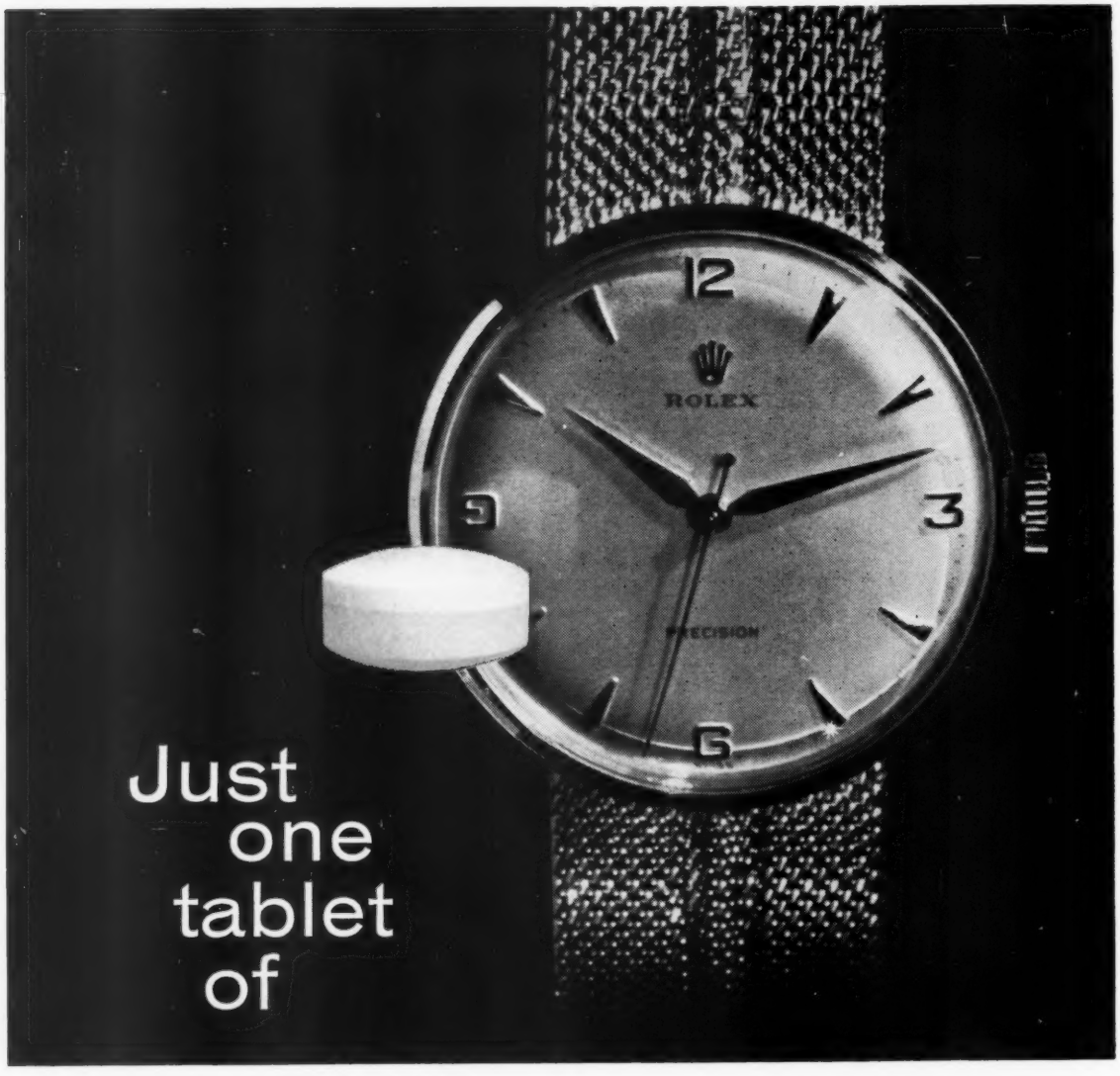

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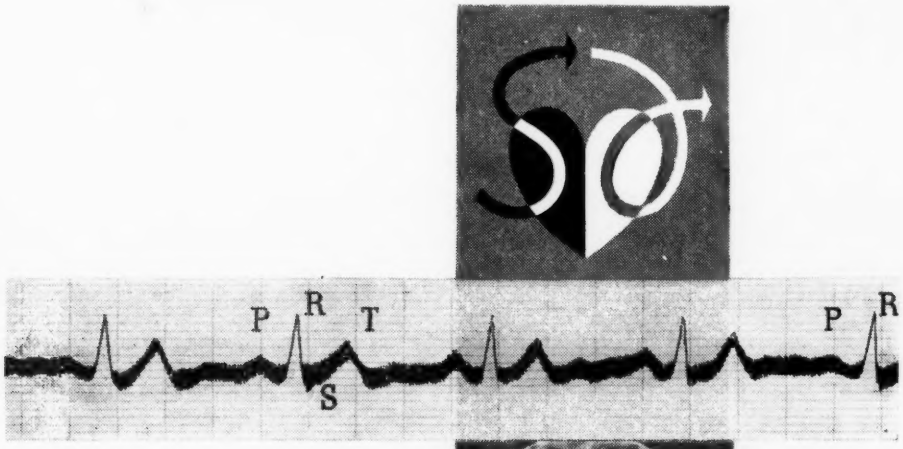

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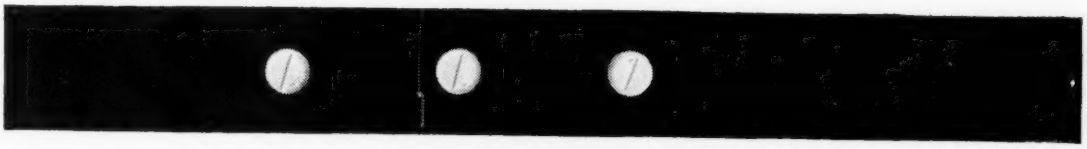

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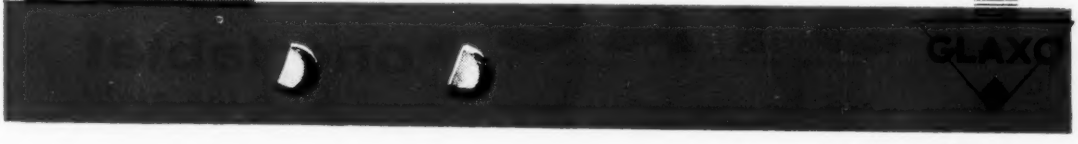

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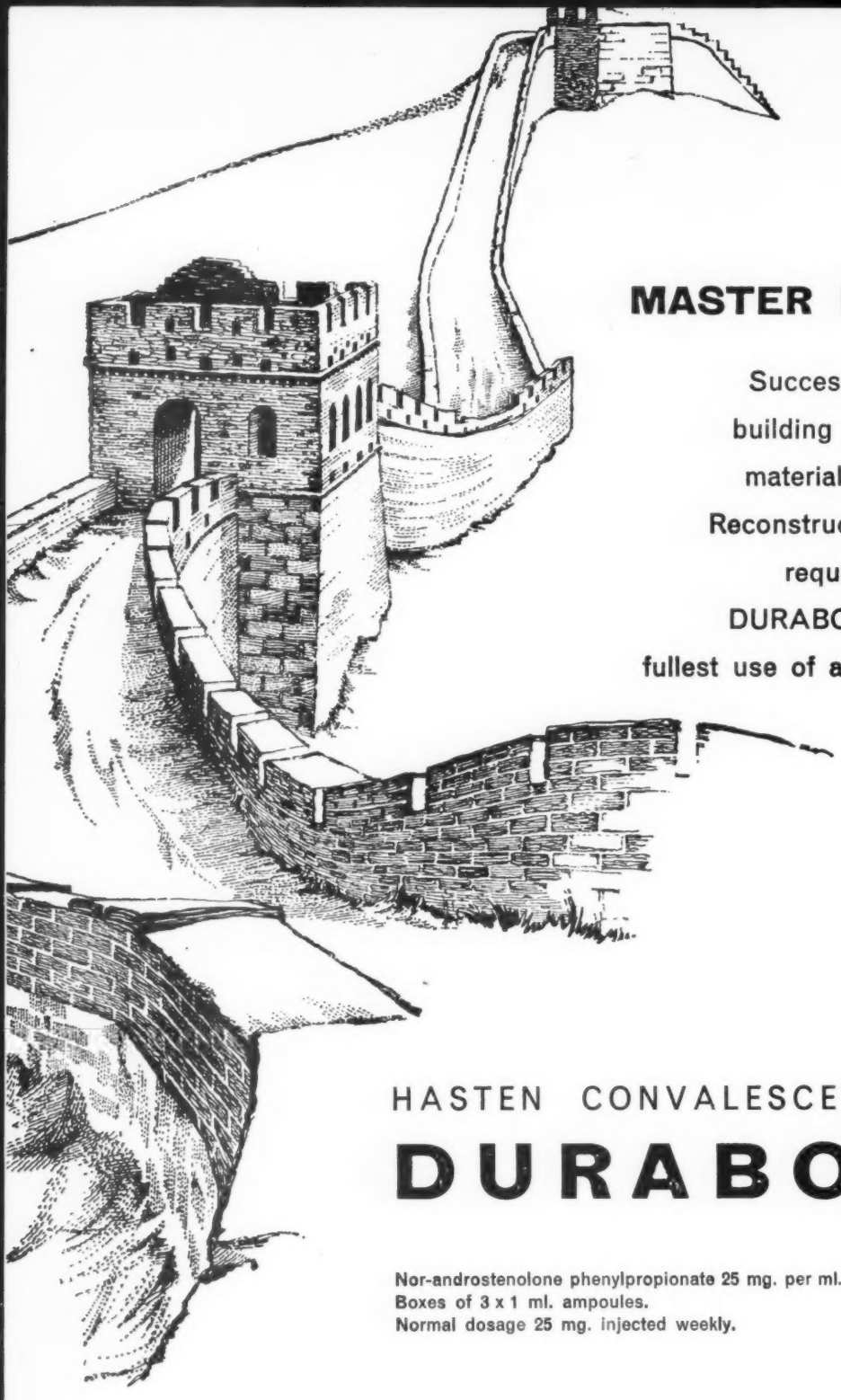

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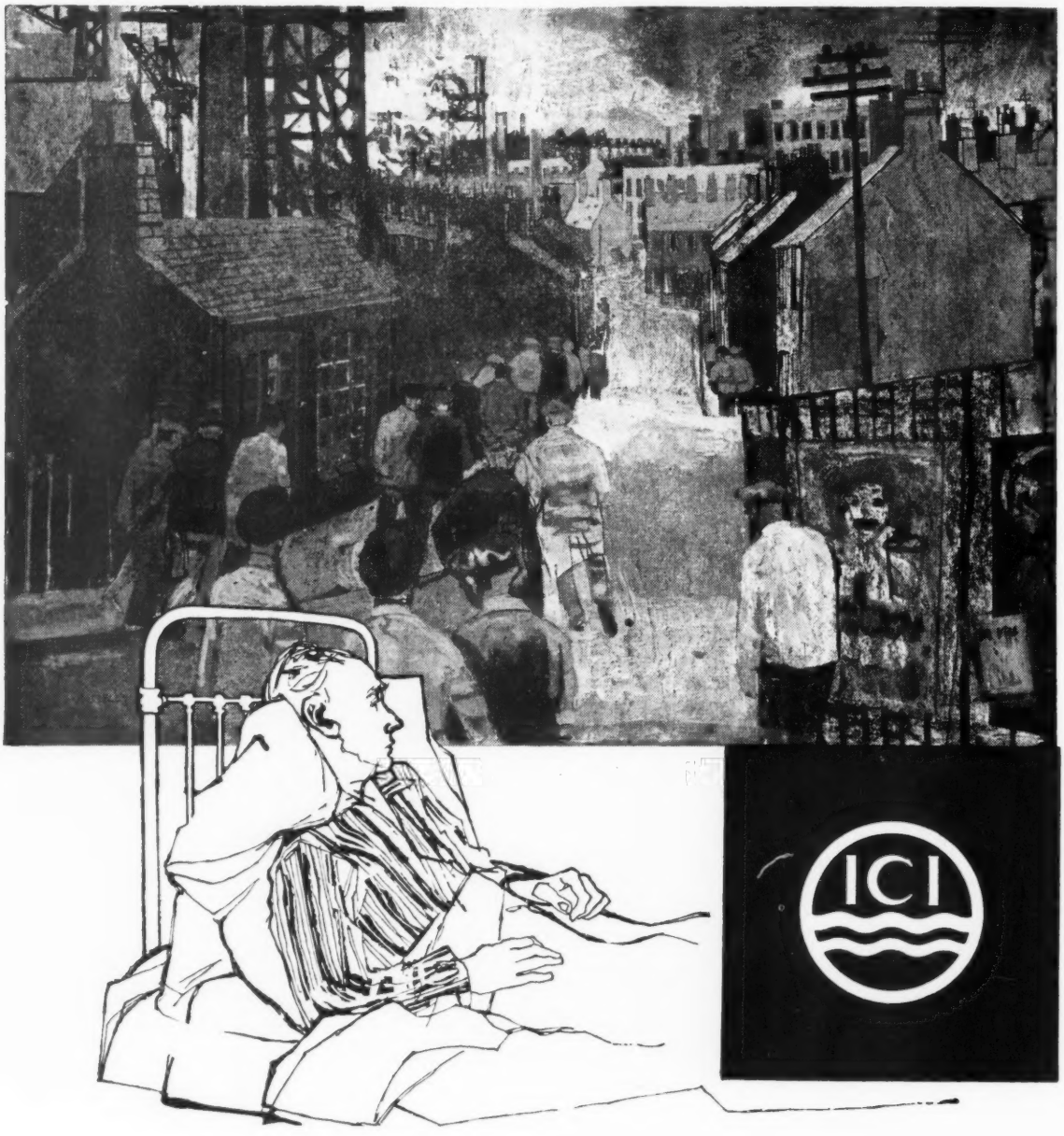

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Brit. med. J., 1960, *i*, 297, *Brit. med. J.*, 1960, *ii*, 1386.

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* *Brit. med. J.*, 1960, *i*, 297

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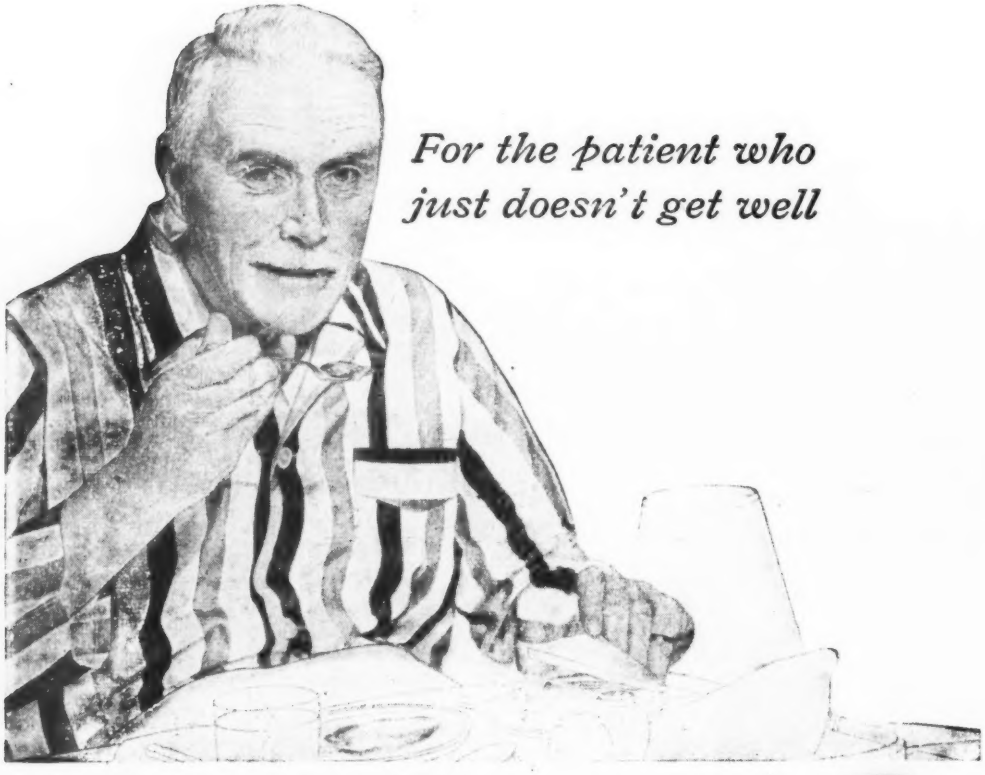

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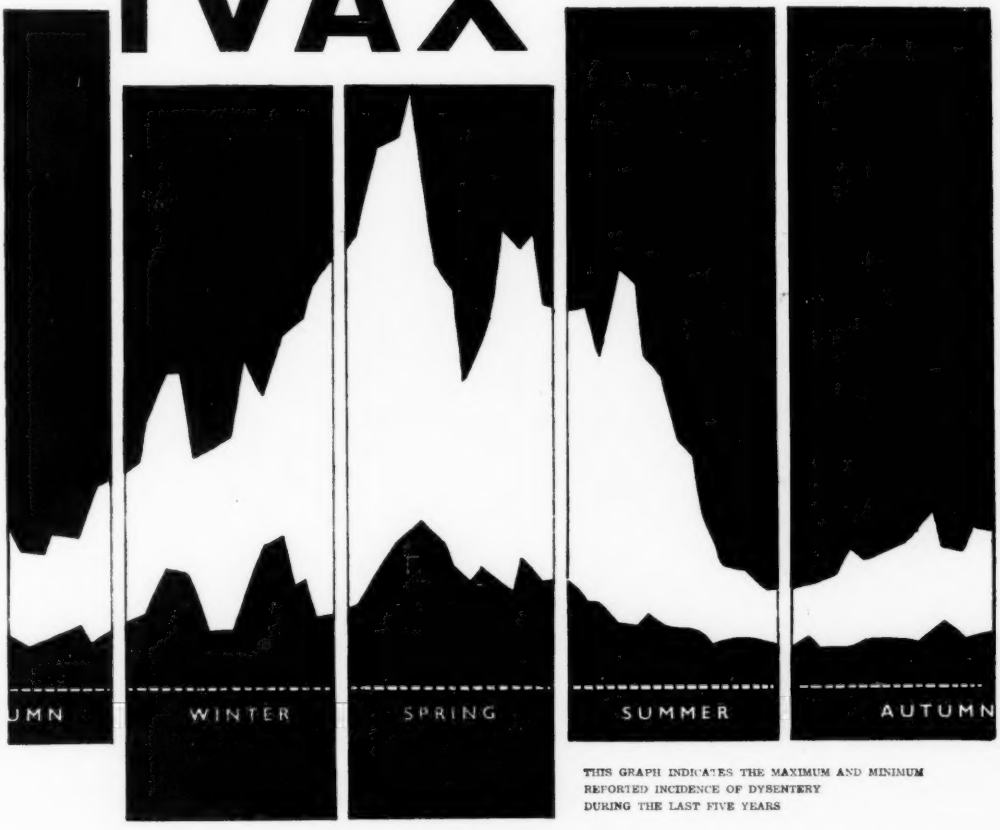

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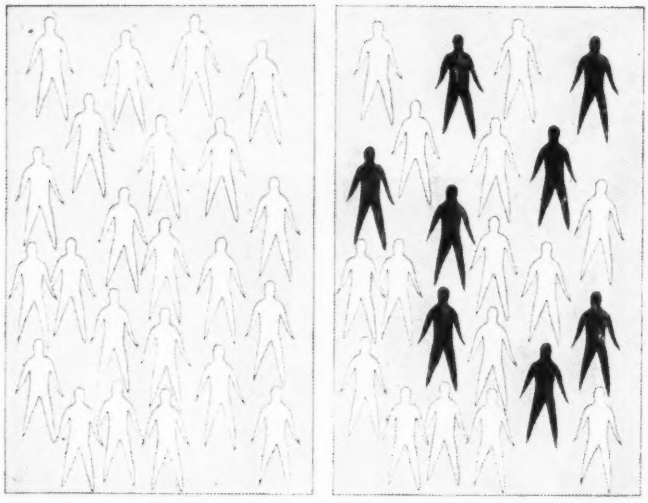

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PROGNOSIS AND SURVIVAL IN THE AFTERMATH OF HEMIPLEGIA

BY

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There are two stages of recovery from a stroke—the fight for life at the onset, and then the struggle to overcome the effects of residual paralysis. Progress in emergency treatment in the first stage has been influenced by the criteria of differential diagnosis and immediate prognosis defined by Aring and Merritt (1935), Millikan and Moersch (1953), and Rankin (1957), and a basis for the assessment of new methods of treatment has been provided by Millikan *et al.* (1958), Fisher (1958), Carter (1960), and Marshall and Shaw (1960) for anticoagulant therapy, and by Rob and Wheeler (1957), de Bakey *et al.* (1959), and Edwards *et al.* (1960) for the application of vascular surgery. There is no comparable background of precise knowledge about the prospects for recovery or the expectation of life in the second stage, the aftermath of a stroke. Prognosis in this stage is seldom distinguished separately, survival is rarely mentioned, and the value of rehabilitation is difficult to assess because the results that have been reported differ so widely in criteria of case-selection and standards of assessment (Wright and Millikan, 1958 ; Lee *et al.*, 1958).

In this paper we present some further information about factors influencing prognosis and survival in the stage of functional recovery from hemiplegia, extending to a larger series our experience with a small group reported some years ago (Adams and McComb, 1953).

The Series

The patients were a group of 736 hemiplegics admitted to the geriatric wards of the Belfast City Hospital between 1948 and 1956 and followed up as out-patients, by home visits, or through their family doctors. The date and cause of death were sometimes difficult to ascertain, and survival times were estimated to the nearest month or to an arbitrary date—April 30, 1959, when the last visits were made. Twenty-six patients (4%) were untraced, a proportion unlikely to affect the statistical analysis relating to the remaining 710 (314 men and 396 women).

Most of these patients were transferred from general medical wards or admitted from their homes in the third or fourth week after a stroke, to avoid moving them in the critical fortnight after onset, when most deaths directly attributable to haemorrhage or infarction occur (Aring and Merritt, 1935). Patients who recover quickly from minor lesions are rarely transferred to us, and, because these rapid recoveries from transient paresis and many early deaths were excluded, the series does not represent the ordinary run of cerebrovascular accidents admitted to general hospitals. It does, however, represent a relatively unselected group of the hard-hit survivors of strokes equivalent to approximately 25% of all cerebrovascular accidents admitted each year to the two largest hospitals in the area. These are accepted without reserve in the belief that no patient who survives the onset of a stroke should be denied an attempt at rehabilitation in the early weeks. It is seldom possible at this stage to foretell what spontaneous mental and physical improvement may be expected in the months ahead.

We have had to ignore the cause of the stroke in the analysis of results because we lacked data to make accurate retrospective diagnoses in many patients, and because the significance of vascular insufficiency in the carotid-vertebral-basilar system was not properly appreciated in the early years of the review. The predominant lesion was cerebral infarction from thrombosis or embolism ; the incidence of haemorrhage was unknown. Accurate diagnosis of the underlying lesion is most necessary at the onset of a stroke to make the best use of life-saving measures and to prevent recurrence in some instances, but it is usually less important than the degree of disability later on.

Patients were given a regime of physical retraining adapted to individual needs and continued as long as there was any sign of improvement, if necessary for several months of in-patient and out-patient care (Adams, 1960). The average duration of in-patient treatment for patients of both sexes who recovered was seven weeks.

As patients were discharged home, died, or were transferred to long-stay wards, the following data were compiled in a card index: age on admission, sex, date of onset, duration of paralysis before admission to the unit, blood-pressure, side of brain affected, and an arbitrary grade of recovery. At annual review, a short progress note was made on survivors, or the date and cause of death were noted.

Classification

Patients were classified into three groups:

1. *Recovered:*—Those who responded to treatment. (*a*) Grade I: Those who became fully independent, with normal intellect, some use of the affected hand, and ability

to walk with confidence. (*b*) Grade II: Patients who became able to walk, but were handicapped by a useless arm and needed help with dressing and toilet; some had impaired intellect but none were incontinent.

2. *Long-stay:* Those who failed to improve appreciably after at least three months of intensive treatment, becoming chairfast or bedfast and incapable of walking alone. They were usually confused and incontinent.

3. *Died:* Those who died within two months of onset, before the likely response to treatment could be assessed.

Results

Table I shows the proportions of men and women in each group. There was no significant* difference between them in group distribution, and four-fifths of those who withstood the onset of a stroke survived the next two months, but their chance of being able to move about and look after themselves was only slightly better than that of being permanently incapacitated (42.3% compared with 38.5%).

TABLE I.—*Prognosis of Hemiplegia in 710 Patients Who Survived the Initial Shock of a Stroke*

Result Group	Males	Females	Total
Recovered	45·2	40·2	42·3
Long-stay	38·2	38·6	38·5
Died under 2 months ..	16·6	21·2	19·2
Total	100 (314)	100 (396)	100 (710)

$\chi^2 = 3{\cdot}05$, D.F. = 2, $0{\cdot}30 > P > 0{\cdot}20$.

Note:—(1) In this and other tables the figures are percentages of the numbers in parentheses. (2) χ^2 is based on absolute numbers.

There were no significant differences between men and women in the grade of recovery. Grade I comprised 42.3% of the men who recovered and 45.3% of the women, and Grade II 57.7% of the men and 54.7% of the women who recovered.

Age Distribution.—There were no age differences between men and women within the three groups (Tables II and III); but, as might be expected, age does affect the outcome of a stroke, and from Table III it may be seen that the average ages of men and women who died (73.8 and 72.5 years respectively) were greater than the average ages of those who became chronic invalids (70.8 and 70.3 years), who in turn were older than the recovered group (67.7 and 65.7 years), and these differences between result groups were significant. However, age does not preclude a good recovery from a stroke; indeed, those who were classified grade I were on average older than grade II patients, though this difference was not technically significant (Table IV).

TABLE II.—*Age on Admission and Fate of 710 Hemiplegic Patients who Survived the Initial Stage of Cerebral Shock*

Age on Admission in Years	Recovered		Long-stay		Died under 2 Months	
	Males	Females	Males	Females	Males	Females
<60	20·4	23·9	10·0	15·7	3·8	4·8
60–	9·9	17·0	12·5	12·4	7·7	10·7
65–	21·1	18·9	17·5	15·0	15·4	15·5
70–	20·4	18·2	24·2	19·6	23·1	33·3
75–	18·3	12·6	18·3	18·3	23·1	14·3
80+	9·9	9·4	17·5	19·0	26·9	21·4
Total ..	100 (142)	100 (159)	100 (120)	100 (153)	100 (52)	100 (84)
χ^2 ..	5·20		2·63		3·32	
D.F. ..	5		5		4	
P ..	0·30–0·50		0·70–0·80		0·50–0·70	

Comparison of age distribution among the three result groups:
Males: $\chi^2 = 19{\cdot}80$; D.F. = 10; $0{\cdot}05 > P > 0{\cdot}02$.
Females: $\chi^2 = 29{\cdot}80$; D.F. = 10; $P < 0{\cdot}001$.

Duration of Paralysis Before Admission.—The earlier physical retraining begins after a stroke the better the result. Table V shows that of the men who recovered 73.9% were admitted less than a month after onset (compared with 55.8% of those who became long-stay invalids), with corresponding figures for the women of 76.1 and 49.0%.

Side of Brain Involved.—In the recovered group of patients (Table VI) there were higher proportions of men and women with lesions of the left cerebral hemisphere (62.7% and 58.5% respectively) than were found in either the long-stay group or among those who died. This difference was significant only for the men. For both sexes there was little difference in the proportions of left and right cerebral lesions in long-stay patients, but there were rather more right cerebral lesions among those who died within two months.

TABLE III.—*Comparison of Average Age and Arterial Pressures Among the Three Result Groups*

Variable	Sex	Recovered		Long-stay		Died under 2 Months	
		Mean	S.E.	Mean	S.E.	Mean	S.E.
Age in years	M	67·7	0·88	70·8	0·80	73·8	1·02
	F	65·7	0·85	70·3	0·81	72·5	0·93
Systolic B.P. (mm. Hg)	M	179·1	3·31	183·0	3·05	173·0	5·29
	F	198·3	3·04	192·2	3·12	178·7	3·98
Diastolic B.P. (mm. Hg)	M	101·4	1·87	103·8	1·94	102·5	3·54
	F	108·5	1·45	109·2	1·99	100·4	2·52

TABLE IV.—*Comparison of Average Age and Arterial Pressures Between Grades of Recovery*

Sex	Grade	No. of Patients	Age in Years		Systolic B.P. (mm. Hg)		Diastolic B.P. (mm. Hg)	
			Mean	S.E.	Mean	S.E.	Mean	S.E.
Males	I	60	69·5	1·34	177·1	5·11	100·0	2·88
	II	82	66·4	1·15	180·6	4·53	102·4	2·61
Females	I	72	67·1	1·23	196·5	4·54	109·0	2·17
	II	87	64·5	1·20	199·8	4·10	108·1	1·89

TABLE V.—*Duration of Paralysis Before Admission*

Duration of Paralysis before Admission (Months)	Recovered		Long-stay	
	Males	Females	Males	Females
0–	73·9	76·1	55·8	49·0
1–	21·8	18·9	23·3	28·1
12–	2·1	2·5	7·5	7·2
24–	1·4	0·6	3·3	3·9
36–	0·7	0·6	4·2	2·6
48+	—	1·3	5·8	9·2
Total ..	100 (142)	100 (159)	100 (120)	100 (153)
χ^2 ..	5·88		2·89	
D.F. ..	4		6	
P ..	0·20–0·30		0·80–0·90	

Comparison of duration distribution between recovered and long-stay patients:
Males: $\chi^2 = 20{\cdot}77$; D.F. = 5; $P < 0{\cdot}001$.
Females: $\chi^2 = 39{\cdot}94$; D.F. = 6; $P < 0{\cdot}001$.

TABLE VI.—*Side of Brain Affected*

Side of Brain Affected	Recovered		Long-stay		Died under 2 Months	
	Males	Females	Males	Females	Males	Females
Left ..	62·7	58·5	45·8	49·7	44·2	44·0
Right ..	35·2	40·9	47·5	42·5	50·0	52·4
Both ..	2·1	0·6	6·7	7·8	5·8	3·6
Total ..	100 (142)	100 (159)	100 (120)	100 (153)	100 (52)	100 (84)
χ^2 ..	0·83*		0·71		0·02*	
D.F. ..	1		2		1	
P ..	0·30–0·50		0·70–0·80		0·80–0·90	

Comparison of side affected among the result groups:
Males: $\chi^2 = 7{\cdot}40$*; D.F. = 2; $0{\cdot}05 > P > 0{\cdot}02$.
Females: $\chi^2 = 3{\cdot}76$*; D.F. = 2; $0{\cdot}20 > P > 0{\cdot}10$.
* Omitting both sides affected because of small numbers.

*Significance implying a probability of a result arising by chance of less than 0.05.

Blood-pressure

Blood-pressure usually rises with the onset of a cerebrovascular accident, falling gradually to its normal value for the individual in the early weeks of convalescence. Most patients were transferred to us in or after this period, and the pressure recorded in the card index for each patient was the highest resting pressure in convalescence. Routine readings were made each week in the rehabilitation wards, but over the years they were made by different members of staff, and only one reading was available for some of the patients who died, so that the analysis of blood-pressures is not strictly comparable with other studies in which standard criteria were used for such records.

An analysis of variance of the data† showed that there was no material difference between the average systolic and diastolic pressures of patients of either sex who recovered or became long-stay invalids, but arterial pressure in those who died within two months tended to be lower than in those in the other two groups, the difference being statistically significant only for women. The average values of both systolic and diastolic pressures in these hemiplegic patients were higher throughout than those in several samples of healthy old people in the general population (Hamilton *et al.*, 1954; Miall and Oldham, 1955; Anderson and Cowan, 1959a, and 1959b), and our results show, as do theirs, that men have lower pressures on average than women (Table III). Average blood-pressure levels did not differ between grades of recovery. Systolic and diastolic pressures of men were rather lower than those of women, but there was no significant difference between the pressures of grade I and grade II recoveries for either sex.

Prognosis for Life

The main object of this survey was to compare the survival of recovered and long-stay patients. We had acquired a discouraging impression that patients who failed to respond to treatment were apt to outlive those who got back on their feet and returned to active life.

Because of certain differences, described earlier, between the recovered and long-stay groups, and between men and women in the series, survival rates have been compared for each sex for patients of similar age, for those with the same side of the brain affected, and for those admitted within a month of their strokes. Because some patients were still alive at the chosen final date, survival was assessed by means of life-tables (Berkson and Gage, 1950). These are most easily presented as graphs (Figs. 1–3), and, although the validity of the following conclusions may not always be self-evident in each graph, they are borne out by comparison of the tabulated data in each instance.

1. Men and women who recovered lived longer than those who became long-stay patients. This was true of each age-group. It is reassuring to find that physical retraining has been worth while. The mistaken impression which prompted this part of the inquiry probably arose from seeing the same faces in the same beds in so many corners of the long-stay wards on routine rounds over many years, whereas patients who recovered were seen only at intervals of months or years.

†An analysis of variance was made of age and of systolic and diastolic blood-pressure for each sex in each of the three groups, and the authors will forward the statistical data to anyone who is especially interested.

2. Women survived somewhat longer than men of the same age and result groups. This is no more than we expect of the weaker sex, and the only factor in the inquiry that might have influenced this finding, other than the more resilient constitutions of elderly women, was their higher average blood-pressure.

3. It appeared from the numbers available that these conclusions were not affected by the side of the brain involved (Fig. 2) or the duration of paralysis (Fig. 3).

4. Moreover, the same differences in the survival curves between recovered and long-stay patients persisted in the analysis of all combinations of subgroups of age, sex, side of brain involved, and duration of paralysis. But the validity of this particular analysis was limited because the numbers of patients in some subgroups were small.

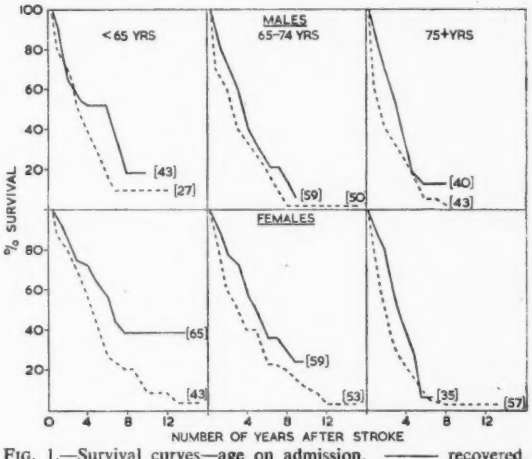

FIG. 1.—Survival curves—age on admission. ——— recovered. - - - - long stay. In each figure the number of patients in the group is given in parentheses.

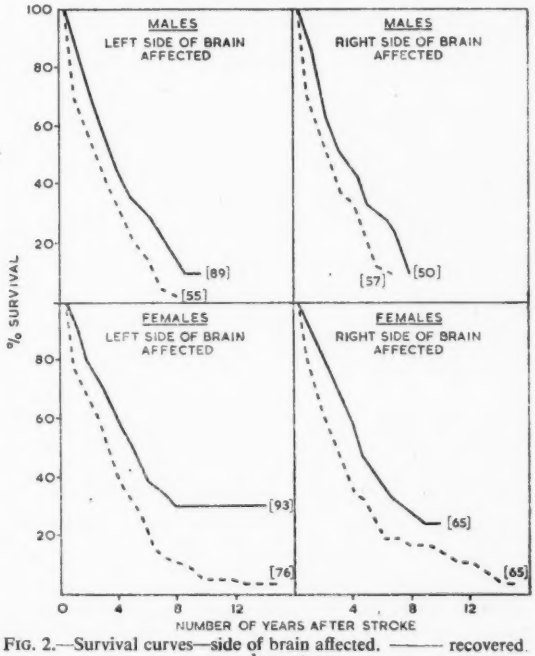

FIG. 2.—Survival curves—side of brain affected. ——— recovered. - - - - long stay.

Owing to small numbers of patients still surviving at the tails of many of these curves, average survival for the whole series could not be estimated. However, it was possible to assess the half-way mark with reasonable accuracy—that is, the number of years after a stroke which half of a given group might expect to live (or, conversely, the number of years which would be exceeded by less than half of a group). Medians drawn

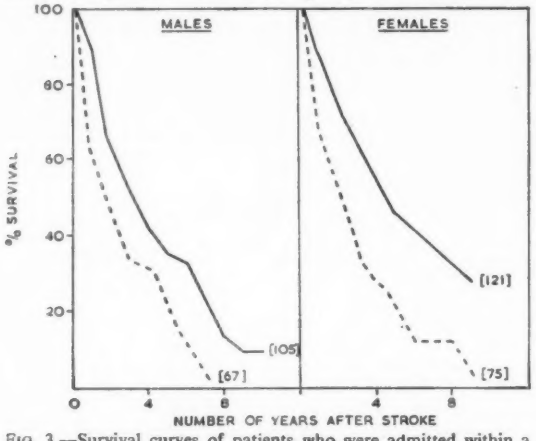

FIG. 3.—Survival curves of patients who were admitted within a month of stroke. ——— recovered. - - - - long stay.

at this point for each sex below 65 years of age, between 65 and 75, and over 75 years show that "group half-survival" declined with age as might be expected, and, as before, that recovered patients outlived the long-stay invalids and the women outlived the men (Table VII). It seemed from this that 50% of the patients of either sex who recovered from their strokes survived at least six years if aged less than 65 at the onset, or about three and a half years if men, or four years if women, over that age.

TABLE VII.—*Comparison of Normal Life Expectation with "Half-survival" after Hemiplegia*

Sex		Recovered Patients. Age-group in Years			Long-stay Patients. Age-group in Years		
		<65	65–75	75+	<65	65–75	75+
Males	Normal average expectation (yrs)	19·3	9·7	5·8	16·6	9·4	5·6
	"Half-survival" figure (yrs)	6·2	3·4	3·2	3·2	2·4	1·8
Females	Normal average expectation (yrs)	20·9	11·0	6·2	19·0	10·4	6·0
	"Half-survival" figure (yrs)	6·6	4·8	3·4	4·1	3·3	1·8

Total number of patients in each group is shown in Fig. 1.

Cause of Death

It was often difficult to obtain reliable information about the cause of death in patients who had died after discharge from hospital. Cerebral thrombosis or haemorrhage may be recorded as the primary cause of death although the stroke may have happened some years before, without recurrence, and death may in fact have followed a terminal pneumonia, coronary or pulmonary infarction, or congestive heart failure.

Of 306 patients in whom the cause of death was traced, 32% appeared to have had a further fatal cerebrovascular accident, 34% died from respiratory disease (mainly terminal bronchopneumonia in bedfast chronic invalids), 18% had coronary thromboses or congestive heart failure, and 16% died from other causes.

Discussion

Compared with other studies of the results of rehabilitation in hemiplegia reported in recent years, the 42% recovery rate in this series might seem at first glance to be a poor result. Dinken (1947), Lowman (1948), Rusk (1950, 1956), and Benton and Rusk (1956) restored independent self-care and the ability to walk unaided to more than 90% of groups of 50 or more hemiplegic patients. Rusk observed that appropriate selection will ensure this high level of success in an average of six to eight weeks of retraining, and that 30% of the patients can return to work. Lee *et al.* (1958) gave a detailed analysis of 230 hemiplegics from the Bellevue Hospital Medical Center, New York. Although 84.5% were said to have improved their ability to walk, and 88.1% improved or regained independent self-care, only 65.7% were described as discharged home "active" and 23.9% home under "medical care." The authors comment that differences in the results reported from various centres may sometimes be related to inadequate home-care services which prejudice the discharge from hospital of patients who have regained independence.

Baumoel *et al.* (1954) found that of 250 patients with cerebrovascular accidents admitted to a hospital for chronic diseases in various stages of disability, 75% ultimately were able to walk with or without the use of some apparatus, and Mahoney *et al.* (1955) restored safe and independent self-care and walking to 81.8% of their first series of 122 hemiplegics, but to only 71.9% of a second group of 70 patients. Lindgren (1958), in a detailed study and follow-up of 65 patients with verified occlusion of internal carotid or middle cerebral arteries, restored self-care and independence to 60% of them, 26% being able to return to work. 75 to 90% of hemiplegic patients are said to recover sufficient voluntary power in the leg to stand and walk (Twitchell, 1957); this is supported by Rankin (1957), who observes that 80% of those who survive a stroke (or nearly 90% of those without bilateral signs) show useful recovery of function.

In contrast with these favourable reports, only 42% of our earlier series of 174 hemiplegics recovered ability to walk and attend to personal needs (Adams and McComb, 1953), and this is confirmed by the present review. Droller (1953), in a follow-up of 275 hemiplegics of vascular origin in Leeds, was able to discharge only 30% of them home, 25% within 12 months, and a further 5% after more prolonged treatment in long-stay wards.

These less successful recovery rates must be due to the higher average ages of Droller's patients and ours, and to the less rigid criteria of selection applied to our admissions. Droller's recovered patients averaged 69.9 years of age, and ours 66.7 years, compared, for example, with 55.7 years in the series reviewed by Lee *et al.* The latter believe that age is an important factor in recovery because 92 of their 96 patients under 55 returned home, but only 24 out of 34 over 65 were able to do so.

Benton and Rusk (1956) excluded patients with a progressive lesion, with intractable renal disease, coronary insufficiency, or heart failure, or with "involvement of cerebral cortical tissue to such an extent as to preclude adequate mentation and retention." The series of Lee *et al.* from the Bellevue Center were those who were thought likely to respond to rehabilitation—"the cream of the crop." Our patients were not chosen so critically. We believe that treatment should persist

as long as there is evidence of improvement, however slight, and we excluded only those patients who could not walk or had advanced senile mental changes prior to the stroke, and those referred with inflexible contractures or in terminal illness. More rigid selection may ensure that time and effort are not wasted on patients who cannot respond to treatment, but it is also apt to deny others a chance to make the most of a delayed recovery. The rewards of resolute treatment over many months in apparently hopeless invalids may be as great in hemiplegia as those expected in some other protracted neurological disorders.

A man aged 60 survived a severe left cerebral haemorrhage with aphasia, flaccid paralysis, and hemianaesthesia. He remained retarded, incontinent, and apathetic, with persistent paralysis for 22 weeks before his mental state began to improve and voluntary movement reappeared in the leg. Incontinence cleared and he returned home, walking with a calliper, after a further 10 weeks. His hemiplegic hand and arm remained useless, but at review two years later he was still active and relatively independent.

A woman aged 73 was admitted to hospital in coma with a left hemiplegia and a heavily blood-stained cerebrospinal fluid. She was not expected to survive, and a month later consciousness was still clouded, with apathy, retarded comprehension, incontinence, and dysphasia. The arm was flaccid and paralysed, although movement was returning to the hemiplegic leg. She was still in this state on transfer for rehabilitation in the sixth week after onset. By the 11th week she had regained normal use of the leg and partial use of hand and arm, but was still incontinent and inattentive, so that she needed constant supervision though able to walk and to get in and out of bed or a chair unaided. Mental improvement progressed until by the 22nd week she was fully independent, able to use the hemiplegic hand in dressing, and dry by day though still occasionally incontinent at night. She returned home to relatives after 33 weeks in hospital.

Three patients with embolic infarction from rheumatic heart disease needed 2½, 3½, and 4½ years respectively to regain the use of the fingers of their hemiplegic hands. They were women, and in each the recovery of a useful hand was a tribute to their constancy and persistence with self-aided exercises to keep the joints flexible while awaiting the return of voluntary movement.

Gowers (1888) described the need to reassure the patient of " the slow recovery that time will bring." The essentials in treatment seem to be effective supervision and training in self-aided exercises to prevent contractures, so that the patient will have a useful limb if and when voluntary power returns, and an environment which will encourage the patient to make the best use of this functional recovery, if he has the grit to do so.

Involvement of the dominant hemisphere is usually regarded as an adverse factor in prognosis of strokes because it is difficult to communicate with the aphasic patient. The predominance of left cerebral lesions among patients in this series who recovered was unexpected. The difference in the proportions of left- and right-sided lesions was significant only for the men, but the same trend was evident in the women. This finding needs to be confirmed from other sources, and meanwhile only tentative suggestions can be offered to explain our results.

A right-handed person who has a stroke and loses the use of his right arm and leg may be driven to redouble his efforts to regain the use of them because he cannot make good with the unpractised left side. With the left side paralysed, he may ignore it not only because it is easier to use the dominant right limbs but because bizarre disturbances of body image and adverse mental reactions often occur with lesions of the non-dominant hemisphere. This would explain the better outcome of left cerebral lesions, but it implies that the extent of recovery rests with the patient. It occurred to us that, if this were true, it must have applied equally to patients in the years prior to the more intensive physical retraining that hemiplegic patients are now given, and therefore the distribution between the two sides should have been the same in the old chronic-ward invalids as it is in the long-stay patients now—that is, about equal numbers of left and right. However, a search showed that of 28 hemiplegics inherited 12 years ago from the old chronic wards, no less than 79% had left cerebral lesions, confirming the belief that there was a predominance of right hemiplegias in chronic hospital wards (Wright and Millikan, 1958). For some reason this trend has changed, because although only one of these original invalids is now alive, only 56% of 32 long-stay hemiplegics with us now have left cerebral lesions. This compares favourably with experience over the whole series—that is, about equal numbers of left and right.

We believe that modern management of hemiplegia must have some bearing on this. Knapp (1959) drew attention to the problems of rehabilitation arising in non-dominant-hemisphere lesions from defects in visuomotor, temporal, and spatial relationships, and in judgment and abstract generalizations. These may cause more difficulty than loss of speech, but, given time and resolute retraining, they may be more successfully overcome. In the past, hemiplegics were often denied both of these essentials, which might explain why so many victims of left cerebral lesions fell by the wayside. Perhaps the right-handed patient who loses the use of the right arm and leg is driven to greater efforts, not so much to regain the use of his hemiplegic side, but to compensate for lack of it by more determined use of the unpractised left. In this he would be helped greatly by modern methods of occupational therapy and physiotherapy.

There are few references to the expectation of life for patients who survive the immediate effects of a stroke. Tennent and Harman (1949), reviewing prognosis in a series of 105 patients with cerebrovascular lesions, observed that, unless seriously compromised by the sequelae of their disease, survivors seem to live out their expected life-span. However, Lindgren (1958) found that one-third of his 65 patients died in less than two years (although only 18 of them were aged over 50), and Pincock (1957) followed up 101 patients with cerebral thrombosis after discharge from hospital and 55 (54%) had died within seven years, cardiac disease being the predominant cause. He observed, as we have, that patients who regained good functional capacity tended to maintain it.

The lack of accurate knowledge of the natural history of cerebrovascular disease prompted a review of the meagre information available and a follow-up of 251 patients by Marshall and Shaw (1959) from the National Hospital for Nervous Diseases. Embolic infarcts were excluded from their series, and no attempt was made to distinguish between transient ischaemic episodes and accident resulting in a permanent neurological deficit. The follow-up period varied from four to nine years, and in this time 63% of the 160 males and 53% of the 91 women had died (119 of the combined 149 deaths occurring within five years). The authors discuss

prognosis for life in relation to the initial diagnosis and note that thrombosis in a hemisphere carries a prognosis as bad as, or worse than, thrombosis of the brain-stem, and that the death-rate in patients (especially men) with diffuse cerebrovascular disease is very high. Lee *et al.*, who reviewed their series between 1947 and 1956, found that 29.1% of active patients discharged home had died, compared with 41.8% of those discharged under medical care, but the distribution of these deaths over the years was not given.

Although we were unable to estimate an average expectation of life for the series, the half-survival figures described earlier could be compared with normal average life expectation within the same age ranges (less than 65 years of age, 65 to 75, and over 75 years) compiled from life-tables (Registrar-General for Northern Ireland, 1957). For each man and woman the expectation of life was estimated at his or her age from the life-tables, and the sum of these figures for each age-group was divided by the number of patients to give a normal average for that group.

In Table VII the normal and hemiplegic half-survival figures are compared, and it is obvious that the expectation of life after a stroke is greatly foreshortened. Even if the normal average expectation of life is halved, it still exceeds the half-survival-mark figures in every hemiplegic group except the recovered men over 75 years of age.

We believe, with Marshall and Shaw, that the death-rate in diffuse cerebrovascular disease is exceptionally high, and it is a prominent cause of the chronic incapacity of many long-stay patients, who, owing to progressive cerebral degeneration, remain apathetic, inattentive, and incontinent until terminal illness overtakes them, usually within two years. The prognosis for younger patients is little better; of 34 patients in this series who had embolic hemiplegia from rheumatic heart disease, only one survived the review period. None of these patients had anticoagulant therapy, and the prognosis for this type of hemiplegia may alter considerably with this treatment in the future (Carter, 1960).

Summary

Prognosis and survival has been studied in a series of 736 patients with hemiplegia of vascular origin who were accepted for rehabilitation two weeks or more after the onset of their strokes.

They were classified in three groups—those who recovered (within two arbitrary grades), those who failed to respond to treatment and became chronic invalids, and those who died within two months of onset. 81% of the patients survived these two months, but their chance of being able to get about and look after themselves was little better than that of becoming relatively helpless invalids.

Older patients were more likely to be permanently incapacitated, but age in itself did not preclude a good recovery nor, contrary to the general belief, did a lesion of the dominant hemisphere. Recoveries included a significantly greater proportion of men with dominant-hemisphere lesions and the same trend was evident amongst the women.

Blood-pressures in these patients were higher on average than those in samples of old people in the general population, and the blood-pressures of the women were higher than those of the men.

The earlier physical retraining began the better, and, if successful, the recovered patient had an even chance of maintaining a relatively active life for at least six years if under 65 years of age at the onset, or for three and a half years as a man and four years as a woman over that age.

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A new series of booklets, "Tutorial System Publications," is being prepared by Dr. Andrew Bogdan, paediatric tutor at the University of Leeds. The first booklet in the series is *The Newly Born Infant*. The booklet is arranged with an outline of the subject under clear headings on the left-hand page, while the right-hand one is left blank so that the student can make a note of his own observations as his experience grows. "It has been designed," the author says, "to stimulate further study, and then to provide a rapid means of revision for the examination candidate." It costs 3s., and may be obtained from the publisher's agents, Austicks Medical Bookshop, 53 Great George Street, Leeds 1, or other medical bookshops.

TREATMENT OF CHRONIC ASTHMA WITH PREDNISOLONE AND THE NEWER STEROIDS

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This paper records the treatment of out-patients with chronic asthma by prednisolone administered in short courses and for continuous periods up to four years. A comparison of the effects of prednisolone with some of the newer steroid derivatives is also made.

Short-term Treatment: Controlled Trial

In order to determine whether prednisolone in relatively low dosage was effective when given in courses of one week's duration, 26 patients with asthma, who usually required the use of an atomizer or bronchodilator tablets several times daily, were selected. Each patient was given three sets of tablets—5-mg. tablets of prednisolone, a bronchodilator (phenoxymethazone 100 mg. or aminophylline 200 mg.), and dummy tablets—in sealed boxes. The contents were known only to the pharmacist, and the tablets were given in varying order. Instructions on the method of taking the tablets were:

1st and 2nd days, 4 tablets in divided doses
3rd and 4th days, 3 tablets in divided doses
5th and 6th days, 1 tablet night and morning
7th day, 1 tablet at night

Each patient was given a diary and was asked to keep a daily record of attacks of asthma and the number of bronchodilator tablets taken or aerosol administrations during each day of treatment.

Assessment was made by comparing (1) the number of attacks of asthma, (2) the quantity of symptomatic drugs employed as spray or tablet, (3) the number of asthma-free days, and (4) the patient's own preference. When prednisolone was compared with bronchodilators (aminophylline or methoxyphenamine) it was found that 19 of the 26 patients had fewer attacks during the week on prednisolone,* four had more attacks, and three had the same number. Fourteen used a smaller amount of other symptomatic remedies while taking prednisolone, eight used more, and four used the same. Comparison of prednisolone with the dummy tablets showed that 17 had fewer attacks on prednisolone,* three more, and six the same; while 19 used smaller quantities of symptomatic remedies while on prednisolone, four used more, and three the same. For the total number of patients (26) 58 asthma-free days were recorded on prednisolone, 29 on bronchodilator tablets, and 26 on dummy tablets. Of 20 patients who expressed a preference, 16 favoured prednisolone.

There appears to be little doubt that prednisolone given in this way can be effective in controlling asthma of moderate severity in a high proportion of patients. It was noticeable that while patients were on prednisolone, asthma-free days were usually recorded in the second half of the week.

Selection of Patients.—Further experience has now been obtained in 102 patients and has shown that two groups are particularly suitable for this form of short-term treatment: (1) those with mild or moderately severe chronic asthma which can usually be controlled by a bronchodilator in aerosol or tablet form, but who from time to time have more severe attacks which fail to respond to the usual remedies; and (2) those who develop a persistent disabling wheeze resistant to bronchodilators, often after respiratory infection. In both groups failure to treat the attack effectively may lead to hospital admission.

Results

Results were assessed initially on the basis of respiratory function tests (vital capacity, peak flow estimations), as well as the patient's report at attendance a week later. When repeated courses have been prescribed, the patient has been instructed to start treatment if the usual symptomatic remedies have failed to control attacks. In such cases subjective evidence has had to be accepted unsupported. The results are shown in Table I.

TABLE I.—*Results of Short-term Treatment*

	No. of Cases	No. of Courses	Good Response	Fair Response	Poor Response
Male	39	71	60	5	6
Female ..	63	285	237	21	27
Total ..	102	356	297	26	33

Fifty-one patients received two or more courses, including four who have had between 10 and 20, and four between 20 and 30, courses over a period of two to four years. Patients receiving multiple courses usually responded well, but variable responses were sometimes recorded.

Failure to respond was attributed to the employment of too small an initial dose or to infection in the majority; no reason for failure was determined in others. Side-effects prevented completion of the course in two. Infection appeared in most cases to be the reason for poor results in those who had previously responded well.

Case 1.—A woman aged 57 had asthma which had begun eight months previously with an acute chest infection. Wheezing and dyspnoea on effort had persisted after the acute attack ceased. Vital-capacity readings over several weeks were repeatedly between 1,400 and 1,600 ml., with peak flow readings of 185 and 230 l./min. before a course of prednisolone was given. At the end of the course the vital capacity had risen to 2,800 ml. and the peak flow to 350 l./min. The improvement was maintained for some weeks.

Case 2.—An asthmatic woman aged 50 with advanced rheumatoid arthritis had previously been admitted in status asthmaticus on a number of occasions. She has had 30 short courses over a period of four years and has responded well to all except one. On this occasion she had a severe accompanying bronchitis. A recent fall led to a Colles fracture, but this appears to have been related to her rheumatoid arthritis rather than to any generalized osteoporosis of endocrine origin.

Case 3.—A man aged 53 suffered from persistent wheezing with superimposed acute attacks. After respiratory infection the vital capacity fell to 1,200 ml., with a peak flow of 185 l./min. The usual symptomatic remedies were ineffective. After a course of prednisolone the vital capacity rose to 3,500 ml. and the peak flow to 230 l./min.

*The preference for prednisolone, using these criteria, is significant at 1% level.

Case 4.—A woman aged 35 had recurrent severe attacks of asthma often associated with heavily infected sputum—23 courses were given over three years, with good results in 16, fair in four, and poor in three.

Side-effects

Two patients were unable to complete the course because of a "bursting" sensation in the chest. Three patients who had repeated courses increased in weight to a considerable extent (22 lb. (10 kg.) after 24 courses, 10 lb. (4.5 kg.) after 30 courses, and 8½ lb. (3.9 kg.) after 24 courses). One had recurrence of pain from a pre-existing duodenal ulcer. Apart from these six patients no side-effects were observed except in the doubtful case already referred to with a fractured arm. One patient died from acute asthma seven months after the third course of prednisolone; it was thought that this death was unrelated to the treatment.

Long-term Steroids

Long-term treatment was reserved for patients with repeated attacks of status asthmaticus, which were regarded as a hazard to life, or for those with severe disabling asthma which seriously interfered with, or prevented them from leading, a normal working life. No cases with primary bronchitis or with obvious evidence of organic emphysema were included. A favourable response to steroids was initially observed during in-patient treatment in most cases. Five subjects treated as out-patients were included in this series after several short courses of prednisolone had proved temporarily effective. All patients were supplied with a card stating the type of dose of steroid used and the date when treatment began.

In this series of 36 treated with prednisolone, 20 had had repeated attacks of status asthmaticus before starting treatment; the remaining 16 had intractable asthma which had failed to respond to other measures, and six of these had had isolated attacks of status asthmaticus. The average period of treatment with prednisolone was 20.7 months, and no patient is included who had less than six months' treatment. Eighteen of these cases also received treatment with the newer steroid derivatives (triamcinolone, methylprednisolone, and dexamethasone) for periods of up to 18 months, and six had been treated with corticotrophin (three) or cortisone (three) prior to treatment with prednisolone. The average total period of treatment with all steroids was 30.9 months.

All patients except five who lived too far from hospital were seen monthly for the first year, and at least every two months thereafter. An initial dose of 20 mg. of prednisolone was given and subsequently reduced to the lowest effective level: 12 cases were stabilized at 15 mg., 21 between 7.5 and 12.5 mg., and three at 5 mg. or less. The effect of treatment was assessed in three ways: (*a*) by measurement of respiratory function, together with recordings of the daily requirements of bronchodilator drugs; (*b*) by comparison of functional activity as judged by capacity for work and loss of time from work, including hospital admissions; and (*c*) subjectively by the patient's personal opinion of the effect of treatment. The final assessment was made mainly on objective evidence provided under the first two headings. The results of treatment are given in Table II.

It can be seen that males responded rather better than females, and that in this series there was no appreciable difference between those cases with a history of status asthmaticus and those with only chronic asthma. Twenty-nine cases are continuing with steroid treatment.

TABLE II.—*Results of Long-term Treatment*

	No.	Excellent	Good	Slight	No Improvement
Cases with previous history of status	M 9	3	5	0	1
	F 14	1	7	3	3
Cases of chronic asthma	M 8	2	5	1	0
	F 5	2	1	2	0

Excellent = Bronchodilator drugs required only occasionally. Maximum vital capacity maintained throughout treatment.
Good = Considerable reduction in amount of bronchodilator drugs required. Vital capacity improved but not normal.
Slight = Improvement claimed by patient but not demonstrable by objective methods.

There were 10 failures, which include those assessed as receiving only slight benefit. Severe emotional factors were present in two of these patients (in one there was considerable doubt whether the tablets were taken regularly); associated bronchiectasis was present in two; repeated attacks of bronchitis occurred in one; in one patient depression developed as a side-effect and necessitated reduction of dosage to an ineffective level; in one, respiratory function tests showed a diffusion defect in addition to spasm. One patient whose asthma deteriorated during the summer months as a result of grass-pollen sensitivity died at home in status asthmaticus in June, while still taking prednisolone in doses which had previously controlled her symptoms. Two patients claimed to be greatly improved, but objective confirmatory evidence of this was not obtained. In several cases successful treatment seemed to depend upon the use of initiative in adjusting the dose of steroid according to the severity of respiratory symptoms—increasing the dose during exacerbations and reducing it during periods of improvement. It was noted that, even in those assessed as having an excellent result, the forced expiratory one-second volume and the peak flow usually persisted at a level well below normal.

Side-effects

Side-effects occurred in nine cases—there was facial mooning with gross increase of weight in three, and hirsuties in one of these. In four cases there was a moderate increase in blood-pressure; all were women of middle age, and three of them had received regular treatment for more than three years. Purpura was recorded in two, dyspepsia in two, and depression in one. More than one side-effect was recorded in two patients. One other developed ulcerative colitis while being successfully treated for asthma. In only one case (the patient with depression) was treatment terminated on these grounds.

Deaths

Three deaths were recorded—one, already referred to, during an attack of severe asthma while receiving treatment. Two others died in status asthmaticus within two months of terminating treatment, which had been given for 6 and 14 months respectively. In both the dosage was gradually reduced before treatment ceased.

Case Histories

The following case histories were typical. The results in Cases 5 and 6 were regarded as "excellent," and in Cases 7 and 8 as "good."

Case 5.—A boy aged 16, with a history of lifelong severe asthma and flexural eczema, was sent to Switzerland, where he remained well for over a year but relapsed at once on returning home, and was admitted to hospital in status

asthmaticus on three occasions within two months. He remained almost completely free from symptoms during 16 months on prednisolone 15 to 12.5 mg. daily and then on triamcinolone 8 mg. for six months, and methylprednisolone 10 mg. for 10 months. Occasional attacks of asthma developed, particularly when visiting friends who kept cats and dogs. On one occasion after skin-testing with extracts of animal hairs he developed acute anaphylactic symptoms with urticaria, wheezing, and collapse which nearly resulted in his death. He had had methylprednisolone 4 mg. three hours before the tests were carried out. During the two years and eight months of treatment no other symptomatic remedy was used, and his vital capacity remained within the normal range and the peak flow was usually normal. Any attempt to reduce the dose below the figures stated led to increased wheezing. Growth appears to have been retarded, but he was small for his age before treatment was started.

Case 6.—A man aged 47. Asthma had begun in a severe form two years previously after an operation for nephrectomy. He had spent 17 weeks in hospital on four occasions during this time and was virtually unable to work. He started treatment with prednisolone 15 mg. for nine months, his weight rising from 123 to 157 lb. (71.2 kg.) in this time: the dose was then reduced to 10 mg. for 10 months, during which he remained well and his weight remained constant. For the next year the dose was reduced to 7.5 mg. without ill effect; the weight fell during this time from 157½ to 147 lb. (71.4 to 66.7 kg.). In the subsequent 10 months he remained well on methylprednisolone 6.4 mg. with a further loss of 6 lb. (2.7 kg.) in weight. During the three and a half years of treatment, apart from occasional wheezing, he has had two attacks of bronchitis, on one occasion remaining in bed for one week, during which he received chlortetracycline. This was the only period of time lost from work. Whereas he had previously taken regular bronchodilator tablets and used an atomizer, he now had no symptomatic treatment other than steroids. The vital capacity was within the normal range except on those occasions when he had bronchitis.

Case 7.—A man aged 61 had had asthma for four years. During this time he was off work for three years and had 12 hospital admissions in status asthmaticus. From April to July, 1956, he was maintained on 15 mg. of prednisolone daily: this was then reduced to 10 mg. with some deteroriation, and 20 mg. daily was taken till February, 1959. His weight, which was 172 lb. (78 kg.) prior to his illness, rose from 156 to 185 lb. (70.8 to 83.9 kg.). Triamcinolone was substituted; he remained well on 8 to 12 mg., and his weight fell to 179 lb. (81.2 kg.). He then resumed prednisolone (10 to 15 mg.) and his weight rose by 3 lb. (1.4 kg.). An atomizer was used from time to time, especially in the second year of treatment; his vital capacity remained between 3,300 and 4,400 ml. except on a few occasions when it fell below 3,000 ml. No time was lost from work over the whole period of 48 months' treatment. During a holiday in Switzerland each year his asthma cleared completely and he was able to climb mountains: he could then omit steroid therapy until his return to England.

Case 8.—A woman aged 57 had had asthma for 21 years. She complained of constant wheezing, was unable to do her housework, and used a spray for up to 50 times daily. Prednisolone 15 mg. daily was given for nine months, 10 mg. for five months, and 7.5 mg. for two months. She was subsequently treated with triamcinolone 4–8 mg. for six months, and dexamethasone 0.75–1 mg. for 10 months. During the first six months of treatment she was admitted to hospital for a period of two weeks with bronchitis, which followed influenza, and for 10 days with asthma and bronchitis; subsequently she remained well and was able to perform her housework without added symptomatic remedies. Her vital capacity, which averaged 1,330 ml. during a period of control observation, rose to an average of 1,720 ml. on 15 mg. and fell to 1,440 ml. during the period on 10 and 7.5 mg. It subsequently rose to 1,600 ml. on dexamethasone 0.75–1 mg. Expiration remained prolonged, and an expiratory wheeze was constantly present on auscultation. Respiratory function thus remained considerably below the normal range in spite of clinical improvement. Her weight increased from 144 to 164 lb. (65.3 to 74.4 kg.) while receiving 15 mg. of prednisolone, remained constant on 10 and 7.5 mg., but fell to 150 lb. (68 kg.) on triamcinolone 6 mg. daily, rising again to 174 lb. (78.9 kg.) during the 10 months on dexamethasone 0.75–1 mg. daily.

Comparison of Prednisolone with Newer Steroids

Eighteen patients whose symptoms were regarded as satisfactorily controlled with prednisolone were switched to a comparable dose of triamcinolone, methylprednisolone, or dexamethasone. They were maintained for periods of at least six months on each preparation, unless there was evidence of deterioration or unpleasant side-effects. Most patients received two of these preparations and some all three. They were encouraged to adjust the dosage of the new preparation to achieve the same result as they had been getting from prednisolone.

TABLE III.—*Comparison Between Newer Corticosteroid Preparations and Prednisolone on a Tablet-for-Tablet Basis*

	No. of Patients Treated	Effects Compared with Prednisolone on a Tablet-for-Tablet Basis		
		Better	Same	Worse
Triamcinolone (4-mg. tablets)	11	4	5	2
Methylprednisolone (4-mg. tablets)	8	0	6	2
Dexamethasone (0·5-mg. tablets)	12	4	0	8

There appeared to be minor individual differences only between these preparations and prednisolone in controlling symptoms of asthma. The numbers involved are small, but it was noticeable that several patients appeared to do less well on dexamethasone and spontaneously replaced this preparation with another steroid: this was partly due to unpleasant side-effects. In two a second course of dexamethasone was also terminated by the patient after a short period.

Side-effects and Effect on Weight

Triamcinolone.—Eleven patients were treated, 10 of them for six months or more. Seven showed a fall of 5 to 10 lb. (2.3 to 4.5 kg.) during the six months on triamcinolone. Most of these were already overweight as the result of treatment with prednisolone. One girl of 18, however, put on 5 lb. (2.3 kg.) in a month with acute mooning of the face and deterioration of flexural eczema while receiving 8 mg. daily; treatment was stopped. On returning to prednisolone 15 mg. daily, her weight fell by 15 lb. (6.8 kg.). Dexamethasone (1 mg. daily) subsequently caused an increase in weight of nearly 20 lb. (9 kg.) in three months. Other side-effects included purpura and haematuria (1), dyspepsia (3), vertigo (1), and transient proteinuria* (1), but were mild. Altogether side-effects were observed in seven cases.

Methylprednisolone.—Eight cases were treated, seven for six months or more. Three showed loss of weight of 3–5 lb. (1.4 to 2.3 kg.). Three who had already lost weight while receiving triamcinolone remained constant at the lower level on methylprednisolone. Transient proteinuria and purpura were observed in the same patients who showed this during triamcinolone therapy.

*This patient also showed proteinuria on prednisolone.

One patient complained of swelling of the face and some deterioration of asthma: she reverted to prednisolone after two months.

Dexamethasone.—Twelve patients were treated. Eight reverted to prednisolone within two months. There was an increase in weight in six patients, in contrast to the tendency to lose weight on triamcinolone and methylprednisolone. Two patients gained 28 and 20 lb. (12.7 and 9 kg.) in three months on 1 and 1.5 mg. daily. Two patients complained of sleeplessness, associated with heartburn in one. Another had palpitations and retention of urine which he likened to the effects of ephedrine. Some side-effects were present in six cases.

Discussion

In spite of general agreement that corticosteroids have a temporarily beneficial effect in asthma, there are few references to their short-term use in the treatment of exacerbations in out-patient clinics. Short courses of prednisolone given over a period of seven or eight days have been found to be beneficial in a high proportion of cases: they may abort severe attacks in some patients subject to intermittent asthma, or terminate periods of persistent wheezing occurring after infective episodes. Even repeated courses at intervals of a few weeks over several years have not been associated with harmful side-effects, though some patients have increased in weight. The majority began to improve within 24 hours of taking steroids: many stated that their condition during the last three or four days of treatment had been dramatically improved. Recurrences were not uncommon within a few days of the end of treatment, but these were usually less severe and could be controlled by other means.

The main reasons for failure in individual cases were that the initial dose might be inadequate or that the period of one week was too short for complete control to be achieved. The dosage has to be adjusted to suit the needs of individual patients. Infection of the bronchial tract, with production of purulent sputum, may antagonize the effect of steroids, and in such cases larger doses of these should be given along with antibiotics. It is important to recognize that there may be a delay of 24 to 48 hours before a response is obtained, during which time symptomatic treatment with bronchodilator drugs should be continued. Close medical supervision is obviously necessary, even though in certain instances it may be left to the patient to decide when to initiate treatment.

The assessment of long-term steroid therapy presents considerable difficulty, but, provided regular information is available, it is possible for a reasonable estimate to be made. Such information includes measurement of respiratory function, records of attacks of asthma and of symptomatic remedies other than steroids, together with capacity for work and time lost on account of asthma. Vital-capacity readings have been used as the main measure of respiratory function: in the course of treating patients with cortisone it had been found that the vital-capacity recordings in the main ran parallel to F.E.V.1. Timed vital-capacity readings were, however, made on occasion and latterly measurements of peak flow rate were also recorded. Evidence acquired in this way confirms the findings of others (Phear *et al.*, 1960; Somner *et al.*, 1960) that many patients who have been leading the lives of chronic invalids may be restored to normal activity, and that this improvement may be maintained for a number of years. In the present series seven cases have remained continuously improved for over four years and nine for over three years. No tendency to acquire tolerance to any individual steroid has been observed, and in some cases the maintenance dose has been gradually reduced. Temporary increase in dosage is often necessary. As Lowell *et al.* (1953), Davies and Williams (1955), and Somner *et al.* (1960) have pointed out, infections of the bronchial tract undoubtedly antagonize the effect of steroids and limit their usefulness in asthmatics.

Serious side-effects have not been recorded in this series. Increase in weight, sometimes considerable in extent, has been common, particularly during treatment with prednisolone and dexamethasone; dyspepsia has been controlled by antacids, and in one case by substituting keratin-coated tablets of prednisolone for the usual preparation; there has been no evidence of the development of peptic ulceration. It has been found exceedingly difficult to terminate treatment in those patients who have responded well. All successfully treated cases showed a level of dosage which could be reduced only at the expense of an increase in the number of asthmatic attacks, and consequently in the quantity of other symptomatic remedies employed: a quantitative relationship could in most cases be established between the degree of improvement as measured by vital capacity or reduction in the use of bronchodilator drugs and the daily dose of corticosteroid administered. There was often a similar relationship between the dose of steroid and the gain in weight. Of the seven patients in this series in whom treatment has been gradually terminated, two have died in status asthmaticus within three months of cessation of treatment. Two other patients, not included in this series, who had received treatment with cortisone for six months, also went into severe status asthmaticus shortly after treatment ceased, and one of these died. Asthmatics treated with steroids for six months or more appear to be subject to a special risk of death from the effects of their disease for some time afterwards, and steroids in large doses should be prescribed at once if status asthmaticus develops in such patients; those suffering from other chronic diseases, such as rheumatoid arthritis treatable by steroids, are not exposed to a comparable potentially fatal hazard.

Bearing these facts in mind, this form of treatment appears to be justified in middle-aged or elderly patients with recurrent attacks of status asthmaticus or disability so severe as to prevent working. This group is known to have a poor prognosis with a high mortality (Rackemann, 1940; Leigh and Rawnsley, 1956; Pearson, 1958). It is particularly inadvisable to begin treatment in young people till all other means of controlling their attacks have failed. Nevertheless, the present series includes 11 patients between 10 and 30 years of age; eight of these had had repeated attacks of status asthmaticus, two were chronically disabled, and one was treated primarily for severe flexural eczema associated with relatively mild asthma.

Comparison of the effects of the newer steroids with prednisolone indicated that, although the former were more potent on a weight-for-weight basis, they offered little advantage in the treatment of asthma. Triamcinolone and methylprednisolone sometimes led to beneficial loss of weight in those who had shown a marked increase on prednisolone. Neustadt (1959) has also drawn attention to weight loss, accompanied by weakness, in some cases of rheumatoid arthritis treated with triamcinolone; none of our patients complained

of weakness. Dexamethasone, on the other hand, appeared to favour weight gain and in some cases development of acute Cushingoid changes. Similar observations have been made by others (Falliers and Bukantz, 1959; Friedlaender and Friedlaender, 1959; Neustadt, 1959; Stresemann, 1959). Occasionally patients appeared to respond more favourably to one particular steroid than to others.

Though most of the patients in this series were thought to have responded satisfactorily to steroids while under observation as in-patients or to repeated short courses in out-patients, the failure rate of long-term treatment is high (28%). This may in part be due to the cautious selection of patients who, with one exception, were severely incapacitated and who were regarded as having a poor expectation of life. Arnoldsson (1958) reported the persistence of moderate-to-severe asthma in 20.1% of 144 cases treated with steroids, and Phear *et al.* (1960) reported poor results in 12% and moderate improvement in 10% of 50 cases.

Though reasons for failure, including infection of the respiratory tract, organic disease of the lungs, severe emotional stress, or psychopathic personality, may often be detected, in some cases no satisfactory explanation can be found. Investigation of respiratory function showed that even those who had done best were seldom restored completely to normal. Lowell *et al.* (1953) have made similar observations. In assessing the effect of treatment it is important to remember that relief of symptoms does not necessarily imply restoration of normal respiratory activity.

Although serious side-effects are few it is still too early to assess the final effects of steroid therapy when continued for many years.

Summary

Short courses of steroids given in tapered doses over eight days are often effective in controlling exacerbations of asthma, though relapses are common.

Long-term steroid therapy may in some cases be maintained with continued benefit for a number of years.

If such treatment is terminated after six months or more the patient shows a tendency to relapse severely and sometimes fatally. Particularly careful supervision is therefore required during the ensuing months.

The newer range of modified steroids, though more potent on a weight-for-weight basis, have little advantage over prednisolone.

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JEJUNAL BIOPSY IN MALABSORPTIVE DISORDERS OF THE ADULT

BY

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The terminology of the malabsorptive disorders remains unsatisfactory, and our knowledge of the relationship between coeliac disease in the infant and "idiopathic steatorrhoea" in the adult is by no means complete. Most investigators now consider that tropical sprue is basically a different condition from "idiopathic steatorrhoea," and the latter term is not regarded as a satisfactory designation for the non-tropical disorder. The term "sprue syndrome" has been used in relation to all these conditions, and the more embracing phrase, "malabsorption syndrome," is often employed to include not only these disorders but numerous others which may result in clinical features commonly found in patients with intestinal malabsorption of the "sprue" type. However, the term "malabsorption syndrome" is clearly unsatisfactory, since the clinical features vary so greatly that the word "syndrome" is inappropriate.

The introduction of a peroral method of jejunal biopsy by a modification of Wood's gastric biopsy tube (Shiner, 1956) or by a biopsy capsule (Crosby and Kugler, 1957) is a great advance which is likely to increase our knowledge considerably, particularly if a satisfactory peroral method of ileal biopsy can also be developed.

The Literature

Paulley (1954) reported mucosal atrophy in the small intestine of four patients with idiopathic steatorrhoea. The specimens were obtained at laparotomy. Shiner (1959), analysing her material obtained over a period of three years, reported that two types of mucosal abnormality might be found in the steatorrhoea group of disorders. Subtotal villous atrophy, with short and flat or non-existent villi, occurred in 21 patients with idiopathic steatorrhoea, in one with tropical sprue, and in one with post-gastrectomy steatorrhoea. Partial villous atrophy, with short clubbed villi, was found in two patients with idiopathic steatorrhoea, in one with post-gastrectomy steatorrhoea, in two with tropical sprue, in one with tuberculous enteritis, in one with the "loop syndrome," and in one with malnutrition and steatorrhoea.

Fone *et al.* (1960) gave the results of jejunal biopsy in 58 patients with "idiopathic steatorrhoea." Of these, 27 were considered to have a "flat" mucosal appearance with absent villi. In another 27 cases there were "abnormal villi" that were short, broad, and squat. In patients with the flat appearances the main presenting feature was diarrhoea, while severe anaemia was not a feature and malabsorption of cyanocobalamin was rare. In the patients with "abnormal villi" the main features were malaise and mild diarrhoea or severe anaemia of relatively short duration. Colicky abdominal pains were a feature in some patients. Malabsorption of cyanocobalamin was not infrequent.

Fone *et al.* (1960) also refer to the work of Cameron (1960), who found flat appearances in the jejunal mucosa of 24 children with clinical features of coeliac disease. So far as their adult patients were concerned, symptoms began before the age of 10 in eight patients with flat mucosal appearances and in three with "abnormal villi." Gluten-free diets were effective in patients in both groups. Nevertheless, these workers suggest that the term "adult coeliac disease" should be applied, and restricted, to those patients with flat mucosal appearances, and suggest that the finding of "abnormal villi" indicates that the patient is not suffering from adult coeliac disease. They suggest that such findings occur in a group of conditions of unknown but differing aetiology, and that as yet there is no satisfactory name for this group.

On the other hand, Rubin *et al.* (1960a), investigating by peroral biopsy the relationship between the jejunal mucosal changes in coeliac disease and idiopathic steatorrhoea in 42 patients, thought that the changes were identical in the two conditions, but that, even in the same patient, both the changes referred to above as a flat mucosal appearance and those referred to as abnormal villi might be found. In a second paper (Rubin *et al.*, 1960b) they concluded that the lesions in the proximal jejunum are apparently irreversible in some patients, but that whether they are irreversible in all remains to be proved. Preliminary studies with the electron microscope have been reported by Hartman *et al.* (1960). Ultrastructural changes indicated a greater reduction in the absorptive surface than had been suspected previously.

The present investigation was begun as a comparative study of the clinical features, the jejunal biopsy appearances, and the results of certain absorption tests in a series of adult patients with malabsorptive disorders of the idiopathic steatorrhoea type.

Material and Methods

The patients studied were 24 who had clinical features and laboratory evidence of "idiopathic steatorrhoea." Three of these had been treated with a gluten-free diet for more than six months and 11 with folic acid for as long a period. As is recorded below, one patient was later found to have an anaplastic carcinoma of the jejunum. Investigations were also carried out on three patients with steatorrhoea after partial gastrectomy, one with steatorrhoea after gastro-enterostomy, one with regional enteritis, one with diarrhoea after resection of a large part of the ileum, and in 12 patients with other medical conditions. In all 18 of these cases the jejunal biopsy showed a normal mucosal appearance.

Estimations of the serum vitamin B_{12} level and of the absorption and subsequent excretion of folic acid were by methods already described (Girdwood, 1956, 1960). The absorption of ^{58}Co-labelled cyanocobalamin was measured by the urinary excretion method of Schilling *et al.* (1955), absorption being regarded as normal if the urinary output of radioactivity exceeded 15% of the administered dose, 0.5 μg. of labelled cyanocobalamin being used. In a few instances the faecal-excretion method of Heinle *et al.* (1952) was employed.

Faecal excretion of fat was measured over a period of 5 to 18 days, a minimum of seven stools being collected. A glucose-tolerance curve showing a rise of less than 40 mg./100 ml. above the fasting level after the oral administration of 50 g. of glucose was considered to be flat. In the xylose-excretion test (Fourman, 1948) the amount excreted in the urine after oral administration of 25 g. of D (+)-xylose was measured, a period of 24 hours being taken in most instances rather than the five hours' collection usually employed. This was because a significant proportion of xylose may be excreted after five hours. In normal subjects the 24-hour urinary excretion of xylose exceeds 5 g.

Jejunal biopsies were obtained with the capsule described by Crosby and Kugler (1957), fluoroscopic confirmation of the position of the capsule being a routine procedure. Specimens were obtained from the upper jejunum; attempts to carry out ileal biopsies with the instrument were unsuccessful. The jejunal specimens were fixed immediately in corrosive formol, embedded in paraffin, and stained with haematoxylin and eosin. Gastric secretion was tested by the maximal histamine test of Kay (1953). The biopsies and other investigations were done without any significant time lapse between them.

Results

In view of the difficulty about terminology the term "primary malabsorptive disease" is used in relation to patients with "adult coeliac disease" or "idiopathic steatorrhoea." Two patients developed their symptoms in the tropics and should perhaps be considered to have tropical sprue.

It soon became clear that it was possible to classify the results of jejunal biopsy in such patients in three categories, as has been done by Shiner (1959) and by Fone *et al.* (1960).

Category 1: Flat Mucosal Surface.—No normal villi were present. The surface was completely or almost completely flattened, and the epithelium was grossly abnormal, the cells being low cuboidal or flattened; the brush border was indistinct. The crypts of Lieberkühn were normal or reduced in number, and were often elongated. Goblet cells were frequent. There was mild, moderate, or heavy cellular infiltration of the lamina propria. Nine cases with primary malabsorptive disease were in this category.

Category 2: Abnormal Villi.—The mucosa was usually of normal or reduced width. Villi were present, but were abnormal in size, shape, and structure. They were frequently short, broad, and squat. Changes in the surface epithelium were less marked than in category 1. The crypts of Lieberkühn showed little elongation. Goblet cells were often numerous. In the lamina propria there was mild, moderate, or heavy cellular infiltration. Ten cases of primary malabsorptive disease were in this category.

Category 3: Normal Mucosa.—Five cases of primary malabsorptive disease and the six patients with steatorrhoea due to other causes, referred to above, were in this category.

These appearances are shown in Figs. 1 to 3.

Clinical Features

The age at onset, presenting features, and major symptoms are given in the accompanying Table, together with the results of certain laboratory studies. For the purpose of this Table, diarrhoea is considered to be slight, moderate, or severe according to whether there were 1 to two, three to five, or six or more stools daily. Steatorrhoea is regarded as moderate if the stool fat was from 7 to 14 g. a day. Treatment, where indicated, was for a period of six or more months.

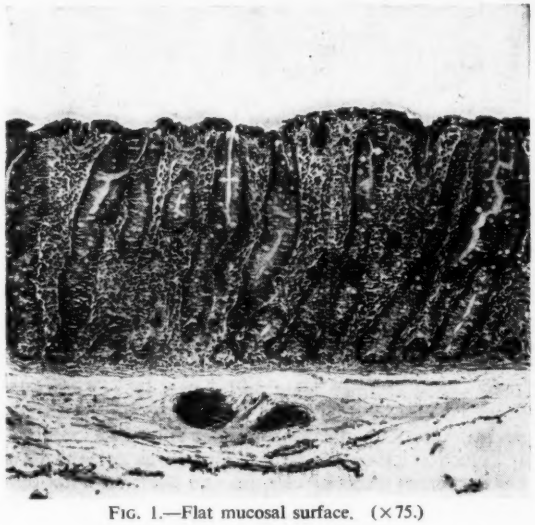

FIG. 1.—Flat mucosal surface. (×75.)

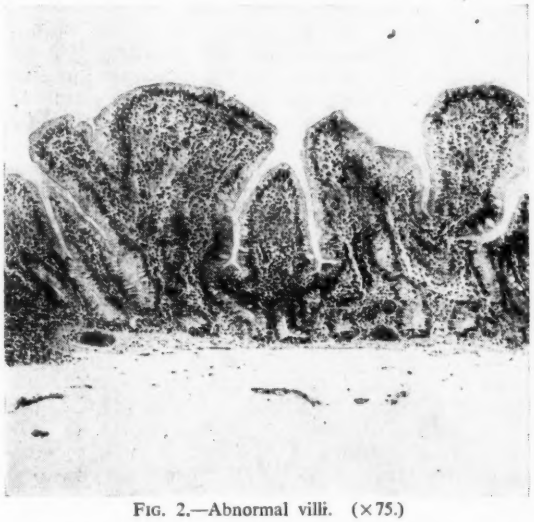

FIG. 2.—Abnormal villi. (×75.)

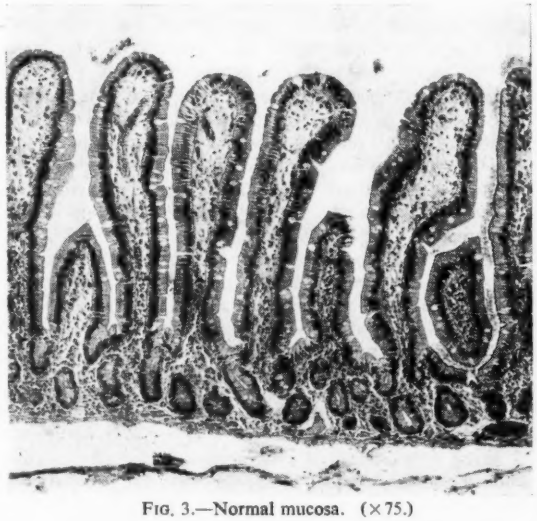

FIG. 3.—Normal mucosa. (×75.)

Summary of Clinical Features in 24 Cases of Primary Malabsorptive Disease (Nos. of Cases)

Mucosal Pattern	Category 1	Category 2	Category 3
Age at onset (years)	10–64	3–63	2–65
No. of males	6	3	4
,, ,, females	3	7	1
Duration when investigated (years)	3/12–25	0–17	2–14
Onset with diarrhoea	6	4	3
,, ,, anaemia	3	6	2
Diarrhoea:			
Slight	2	2	—
Moderate	4	7	3
Severe	—	—	—
Abdominal pain	—	4	1
Weight (mean)	105 lb. (47·6 kg.)	104 lb. (47·2 kg.)	123 lb. (55·8 kg.)
Height ,,	63½ in. (1·61 m.)	62 in. (1·57 m.)	62 in. (1·57 m.)
Marrow: megaloblastic	3	2	1
,, normoblastic	4	4	1
Lowest Hb level without treatment:			
Mean (g./100 ml.)	9·4	8·7	8·4
Range ,,	2·2–13·6	3·0–13·8	3·6–16·9
Lowest R.B.C. level without treatment:			
Mean (mil./c.mm.)	3·19	2·81	3·81
Range ,,	0·75–4·13	0·45–4·67	1·78–5·40
Serum vitamin B_{12} level:			
Mean ($\mu\mu$g./ml.)	180 (6)*	260 (8)*	180 (2)*
< 100 $\mu\mu$g. ml. (without cyanide)	1	3	—
Malabsorption of cyanocobalamin	5	6	2
,, folic acid	8	8	2
Achlorhydria	2	1	1
Free HCl	4	7	4
Steatorrhoea:			
Nil	2	4	2
Moderate	5	4	1
Severe	2	2	2
Glucose absorption impaired	7 (8)*	4 (8)*	2 (3)*
Xylose ,, ,,	4 (6)*	7 (8)*	3 (4)*
Treatment before biopsy:			
Folic acid	4	6	1
Gluten-free diet	—	2	1

* Indicates number of patients investigated.

Cases With a Normal Mucosal Pattern

There were five cases with a normal mucosal pattern, and, briefly, the features were as follows:

Case 1.—A 36-year-old man first had diarrhoea in India during the second world war, and therefore may be a case of tropical sprue. Diarrhoea recurred at intervals after his return to the U.K., and he developed iron-deficiency anaemia. There was malabsorption of folic acid (output after 5 mg. subcutaneously (A) 2.25 mg.; output after 5 mg. orally (B) 0.67 mg.; excretion index (B/A × 100) 29.8%), glucose, xylose (4.2 g. in five hours), and fat (15.1 g./day). No abnormality was found on radiological examination of the small intestine. The jejunal biopsy specimen was normal.

Case 2.—A 19-year-old youth had been diagnosed as having coeliac disease at the age of 2½ years, and treated for this throughout childhood, though not with folic acid or gluten-free diet. At the age of 16 he was shown to have iron-deficiency anaemia, malabsorption of folic acid (A = 2.8 mg.; B = 0.5 mg.; excretion index 17.9%), and xylose (3.8 g. in five hours). Diarrhoea was not a feature at this time and absorption of fat was normal. No abnormality was found on radiological examination of the small intestine. He was treated with gluten-free diet for two years. He then had normal absorption of folic acid, and it was at this stage that a jejunal biopsy showed a normal mucosal pattern.

Case 3.—A 74-year-old woman developed megaloblastic anaemia but had hydrochloric acid in the gastric juice. The diet was good and there was no diarrhoea. She had malabsorption of folic acid, which persisted after treatment with folic acid for six months (A = 3.27 mg.; B = 0.11 mg.; excretion index 3.36%). There was also malabsorption of glucose, xylose (3.4 g. in five hours; 4.7 g. in 24 hours), and vitamin B_{12} (77.1% of radioactivity in the stools after an 0.5 μg. dose of ^{58}Co-labelled cyanocobalamin). A barium-follow-through examination showed flocculation of the barium. The jejunal biopsy, done six months after acid therapy was started, showed a normal mucosa.

Case 4.—A 26-year-old man had been admitted to hospital three years previously with iron-deficiency anaemia, but no evidence of bleeding. There was no history of diarrhoea. He had malabsorption of iron, folic acid (A = 1.16 mg.; B = 0.18 mg.; excretion index 15.5%), and fat (8.7 g./day).

but not of xylose, glucose, or vitamin B_{12}. No abnormality was found on barium examination of the small intestine. He was admitted to hospital after a motor accident, and a jejunal biopsy was done at this time. The mucosa was normal, and folic-acid absorption was now normal.

Case 5.—A 52-year-old man who had a six-year history of diarrhoea associated at times with lower abdominal pain. He had been diagnosed as having pernicious anaemia at the age of 30, and was treated thereafter with injections of liver extract. He had malabsorption of fat (17 g./day), glucose, and folic acid (A=2.7 mg.; B=1.0 mg.; excretion index 37.0%). He had complete achlorhydria and malabsorption of labelled cyanocobalamin (90% of radioactivity in the faeces). The malabsorption was corrected by an intrinsic-factor preparation. A barium-follow-through examination revealed no abnormality. The patient was thought to have both pernicious anaemia and primary malabsorptive disease. He was treated for three years by his doctor with injections of cyanocobalamin, and then consented to further out-patient investigation. Malabsorption of vitamin B_{12} was still a feature, but absorption of folic acid was then normal. A gastric biopsy showed atrophic gastritis, and jejunal biopsy revealed a normal mucosa.

Discussion

These findings confirm the claims of Shiner (1959) and of Fone *et al.* (1960) that patients with primary malabsorptive disease may have either a flat mucosal pattern or abnormal villi. In addition, five of our patients had a normal mucosal appearance. Most workers consider that repeated biopsies on the same patient will reveal similar histological appearances on each occasion, and this was so in four patients on whom we repeated the investigation; but in the patient referred to below, who developed intestinal obstruction from jejunal carcinoma, both category 1 and category 2 changes were present. Although Rubin *et al.* (1960a) found both category 1 and category 2 changes in the same patient, this was exceptional. It is of interest that Cameron and Khanna (1959) demonstrated that extensive ischaemic destruction of small-intestinal mucosa in the rat is followed by complete regeneration of the villi within 72 hours. In the course of this regeneration the mucosal appearance at different stages resembles both the changes that we have referred to as a flat mucosa and those described as abnormal villi.

Fone *et al.* (1960) suggested that only those patients with absent villi should be said to be suffering from coeliac disease or adult coeliac disease, and claimed that clinical features and laboratory findings indicate that such patients are "aetiologically different" from the others. In the present stage of our knowledge we see little justification for this view, except that Cameron (1960) found a flat mucosal pattern in 24 children with clinical features of coeliac disease.

So far as our patients were concerned, symptoms were present from early childhood in some in each of the three groups, and, apart from colicky pains being more common in category 2 patients, we did not find any obvious difference in the clinical or laboratory findings in the groups. Unlike Fone *et al.* (1960), we did not find that diarrhoea was more commonly a feature in category 1 patients or anaemia more common in category 2. Malabsorption of labelled cyanocobalamin and a low serum vitamin B_{12} level were not more prominent in patients with abnormal villi. Malabsorption of folic acid was usually a feature whether the villi were absent or merely abnormal. Both types of change were seen after prolonged folic-acid therapy. It is possible that two of our patients had tropical sprue. One had absent villi but responded to a gluten-free diet after this investigation, so the diagnosis is doubtful. The other had a normal mucosa, although he had received no treatment. It has been shown by Shiner and Doniach (1960) that abnormal villi may be found in tropical sprue, and that folic-acid therapy may sometimes restore the mucosal pattern to normal in this condition.

In the diagnosis of primary malabsorptive disease, jejunal biopsy by the oral route is a most useful addition to the investigative methods that we possess, but diagnostic difficulties still remain.

Possible False Diagnosis of Primary Malabsorptive Disease (Idiopathic Steatorrhoea)

A 50-year-old man, included in the Table as having category 1 changes, had the jejunal biopsy done eight months after he developed painless diarrhoea. He then had tetany and had lost about 14 lb. (6.4 kg.), being 110 lb. (49.9 kg.) in weight and 5 ft. 2 in. (1.57 m.) in height. Finger-clubbing and bowing of the legs were present. He had malabsorption of folic acid, vitamin B_{12}, glucose, xylose, and fat. There was osteoporosis, and the serum levels of calcium and chloride were low. Prothrombin activity was impaired. A barium-follow-through examination showed no abnormality and the stools did not contain occult blood. He was treated with folic acid, 15 mg. thrice daily orally, calcium gluconate, calciferol, and injections of cyanocobalamin. Five months later he was admitted to another unit with intestinal obstruction, and at operation an anaplastic carcinoma was found situated about 70 cm. below the duodeno-jejunal flexure. The tumour was about 8 cm. in diameter and there was local involvement of mesenteric glands. Biopsy specimens taken 20 cm. proximal and distal to the tumour showed category 2 changes. In view of the extent of the malabsorption, it seems likely that the patient had primary malabsorptive disease and that the tumour developed later, its growth perhaps being speeded by the folic-acid therapy, but no definite conclusion can be reached.

Another patient, not included in the Table, with a short history suggesting malabsorptive disease, had category 2 changes on jejunal biopsy, but at operation for a perforated small bowel was found to have reticulum-cell sarcoma of the ileum. It is unlikely that he had two diseases. On the other hand, a third patient was found to have malabsorption of fat, folic acid, and glucose, but not of vitamin B_{12}, five months after he began to have diarrhoea. A barium-follow-through examination was negative. He was treated not with folic acid but with a gluten-free diet, and 16 months later he developed intestinal obstruction from a localized carcinomatous annular constriction of the ileum measuring 1.5 cm. in length. Jejunal biopsy several months after this showed category 2 changes, and there was malabsorption of vitamin B_{12}. It seemed that in this third patient there was a coincidence of two diseases. It would be valuable, however, if other workers would take mucosal biopsies at sites distant from the lesion when operating upon patients with organic disease of the small intestine to see whether changes similar to those in primary malabsorptive disease are common. Recently it has been shown that neomycin will cause small-intestinal mucosal changes similar to those of primary malabsorptive disease (Jacobson *et al.*, 1960).

Possible False-negative Diagnosis

There is also the problem of whether it is justifiable to make a diagnosis of primary malabsorptive disease when the jejunal pattern is normal. Of our five patients with a normal mucosal pattern, the first probably had

tropical sprue and the second had coeliac disease. The latter patient, however, had treatment with a gluten-free diet for two years before the jejunal biopsy was done. Whether or not a gluten-free diet will cause an abnormal mucosal pattern to revert to normal is a matter of doubt (Rubin *et al.*, 1960b). The third patient had laboratory evidence of primary malabsorptive disease, and it is unlikely that the normal mucosal pattern was due to folic-acid therapy. Her response to this treatment was entirely satisfactory and there was no evidence of any other cause for megaloblastic anaemia. Indeed, if a non-pregnant patient who is not suffering from primary malnutrition or taking anticonvulsant drugs develops megaloblastic anaemia and has hydrochloric acid in the gastric juice, the cause of the anaemia is almost certain to be in the alimentary tract, and primary malabsorptive disease or tropical sprue are the most likely causes.

The other two patients are less satisfactory, and raise the problem of the number of tests that have to be positive before a diagnosis of primary malabsorptive disease can be made. Steatorrhoea may be due to various causes; a flat glucose curve does not necessarily mean malabsorption, and vitamin-B_{12} absorption may be impaired because of a blind loop or disease of the ileum. The folic-acid-absorption test, though very useful, particularly in untreated patients, may suggest malabsorption merely because a urine collection has been incomplete. We have not found serum-folic-acid curves to be particularly helpful (Girdwood and Delamore, 1961). Moreover, barium examination of the small intestine may not reveal even gross disease (Doig and Girdwood, 1960).

Laparotomy in Malabsorptive Conditions

Laparatomy was not performed in our five patients with a normal mucosal pattern, and the diagnosis seemed to be satisfactorily established without this in Cases 1 and 2. Subject to tests of pancreatic function and other obvious investigations being first completed, it is difficult, however, to be certain that malabsorptive disease is primary rather than due to organic disease of the small intestine when the jejunal mucosa is normal and there is no history of tropical sprue or coeliac disease. Under these circumstances laparotomy is justifiable.

The two patients with carcinoma of the small intestine had been fully investigated and the results of all the tests were compatible with a diagnosis of primary malabsorptive disease. This seemed to be confirmed by jejunal biopsy, and, unless it be argued that everybody with small-intestinal malabsorption should have a laparatomy, there were no features prior to the development of intestinal obstruction that called for surgical intervention. It would be difficult to justify surgical exploration of the abdomen in all patients with intestinal malabsorption, but it must be accepted that the presence of a jejunal mucosal pattern compatible with primary malabsorptive disease does not exclude the possibility of another lesion developing or being present in the small intestine.

Summary

Jejunal biopsies were carried out by the oral route in 24 patients with malabsorptive disease of the idiopathic steatorrhoea type (primary malabsorptive disease) and in 18 other patients, six of whom had steatorrhoea from other causes. In these 18 patients the mucosa was normal.

Of the patients with primary malabsorptive disease, 9 had absent villa, 10 had abnormal villi, and 5 had a normal mucosa. There was no obvious correlation between the type of mucosal appearance and either the symptoms or the results of laboratory tests of absorption. There was nothing in these results to justify the view that primary malabsorptive disease with absent villi has a different aetiology and symptomatology from primary malabsorptive disease with abnormal villi.

Reference is made to the difficulty of diagnosing primary malabsorptive disease when the jejunal mucosal pattern is normal, and to three patients with the jejunal pattern of primary malabsorptive disease who developed surgical complications because of malignant disease of the small intestine.

We are grateful to Miss E. McPhillips and Miss Pamela Donald for assisting with the microbiological assays. The photomicrographs were taken by Mr. T. Dodds. Financial assistance was obtained from the John Risk Bequest.

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EXTRAMURAL AND INTRAMURAL BLOOD-SUPPLY OF COLON*

BY

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[WITH SPECIAL PLATE]

Drummond in 1914 was one of the first to describe the importance of the marginal artery of the colon, and later the vasa recti and their relationship of the possible causation of diverticula in the colon. We have in recent years repeated this work using newer techniques, which have given us fuller details of the anatomy of the extramural and intramural vessels of the colon. These investigations have been carried out on necropsy bodies and on specimens removed at operation. The findings on the gross topographical anatomy of the main vessels of the colon have previously been described (Griffiths, 1956), and in this paper it is intended to deal with the abnormalities and variations of the marginal artery and the intramural vessels of the colon and their importance in surgery of the colon.

Experimental injections carried out on necropsy cadavers or post-operative specimens have no value in defining the feasibility or otherwise of surgical procedures, but they can be helpful in demonstrating the basis on which clinical experiments should be conducted.

*This work was done while holding a B.M.A. Research Scholarship

Braithwaite (1955), experimenting on rats, demonstrated the effect of ligation of various colic vessels on the viability of the colon. These conclusions are valueless when applied to human subjects, as there is a basic difference between the morphology of the colon in the two species.

Okinczyc (1907), performing survival experiments on dogs, ligated the marginal artery at two points on the transverse colon, and demonstrated that the intestine between the sites of ligation remained viable. This finding does not agree with the results of injections performed on human beings and is contrary to experience obtained at operation. Litten (1875) was the first to ligate the inferior mesenteric artery in a dog, and he stated that gangrene of the distal colon ensued. Rothschild (1929) demonstrated that the marginal artery in dogs was able to maintain the blood-supply to the colon after ligation of the colic vessels.

Care must be taken in interpreting the findings of injection experiments. Sudeck (1907) and Manasse (1907), though performing excellent experiments, drew false conclusions from their findings. Radiographs published by Sudeck in his original article in 1907 illustrated the adequacy of the anastomosis between the last sigmoid artery and the superior rectal artery, his hypothesis of a "critical point" being based on injection experiments which did not allow for post-mortem spasm or the viscosity of his injection material.

Necropsy spasm occurs in all arteries within two to three hours of death (Bayliss, 1902; McWilliam and Mackie, 1908), but can be overcome by infusing the arteries with a weak solution of ammonia before the injection experiments are performed. Post-mortem clotting interferes with filling of the smaller vessels in necropsy cadavers, but this can be eliminated in post-operative specimens by infusion with normal saline solution immediately after removal. The viscosity of the injection mass can be controlled by using varying dilutions; in the injection experiments described below a barium and gelatin mixture was used, the viscosity of which was much greater than that of blood, and no filling of the mural vessels occurred in experiments 1, 2, and 3. In experiment 4 the post-operative specimens were injected with a "micro-opaque" solution and the mural vessels filled.

Method of Investigation

The marginal artery was investigated in necropsy bodies by injecting through the aorta a barium suspension containing gelatin. The colon was then removed, and a radiograph was taken which outlined the colon and showed the vessels filled with barium. The intramural blood-vessels of the colon were investigated in operative specimens by injection through a large vessel as soon after removal as was possible, thus preventing both post-mortem spasm of the larger vessels and also blockage of the smaller vessels by post-mortem thrombosis. As soon as the operative specimens could be obtained they were washed through with normal saline containing heparin, and then injected with a "micro-opaque" solution mixed with methyl cellulose diluted with water to the required consistency. The methyl cellulose was used as a dispersing medium to avoid clumping of the barium particles in the small vessels, thus giving a more uniform result during microradiography. Immediate fixation of the colon in formalin prevented leakage of the injected suspension from the smaller vessels, the larger arteries and veins having been tied off. By using "kodaline" film and long exposure with a standard *x*-ray unit it is possible to obtain a negative which can be enlarged up to 60 times without the grain of the film interfering with the details of the anatomy of the vessels.

The injected specimens were also embedded in low-viscosity celloidin as described by Parks (1958), modified after Chesterman and Leach (1949). Transverse sections of the colon were then cut at 100μ, stained with anthracene blue, and mounted. These were then used as negatives in a photographic enlarger and prints made of enlargements, showing the barium-filled vessels in the transverse section of the wall of the intestine.

Anastomosis Between Inferior and Superior Mesenteric Arteries

The anastomosis which occurs between the inferior and superior mesenteric arteries was first demonstrated by injection techniques by Archibald (1908) and Rubesch (1910), who injected radio-opaque material into the superior mesenteric artery and demonstrated a rich anastomosis between the middle and left colic arteries. These experiments have been personally repeated and others performed to prove the effectiveness of this anastomotic channel.

Experiment 1

The inferior mesenteric artery was ligated at its origin in 12 necropsy bodies, and radio-opaque solution was injected as described previously, but with the cannula in the aorta above the origin of the superior mesenteric artery. There was filling of all the branches of the inferior mesenteric artery down to the rectum, including the smaller vessels of the colon and rectum.

Experiment 2

On three necropsy bodies experiments were carried out which simulated the effect of high ligation of the inferior mesenteric artery during operative procedures on the distal colon and rectum. Silver clips were placed on each branch of the inferior mesenteric artery ½ in. (12.7 mm.) distal to its junction with the marginal artery, and radio-opaque material was injected, as described in experiment 1. It was demonstrated conclusively that the marginal artery along the descending colon was capable of supplying the gut down to the sigmoid colon and rectum, though the inferior mesenteric and its branches had been ligated. These experiments have been confirmed clinically at operation, when the inferior mesenteric artery has been ligated on the aorta, and an adequate blood-supply to the distal colon, dependent on the marginal artery, has been observed.

Experiment 3

During injection of necropsy bodies a cannula was inserted into the aorta below the origin of the superior mesenteric artery, a ligature being placed around the aorta at this site, and the extent to which the inferior mesenteric artery could supply the colon was demonstrated. In 16 bodies filling of the superior mesenteric artery and its branches occurred, with, in some of them, retrograde filling of the aorta above the site of the ligature through the orifice of the superior mesenteric artery. In other cases, though the colic vessels were filled, there was no filling of the mesenteric branches of the superior mesenteric artery. This was due to the ostial stenosis which occurs at the origin of the inferior mesenteric artery, diminishing the pressure under which the injection material enters the artery. In six bodies the cannula was inserted directly into the inferior mesenteric artery; in these the injection material filled all the branches of the superior mesenteric artery.

Anastomosis Between Superior Rectal and Middle Rectal Arteries

Experiment 4

In three necropsy bodies radio-opaque material was injected into the aorta following ligation of the inferior mesenteric

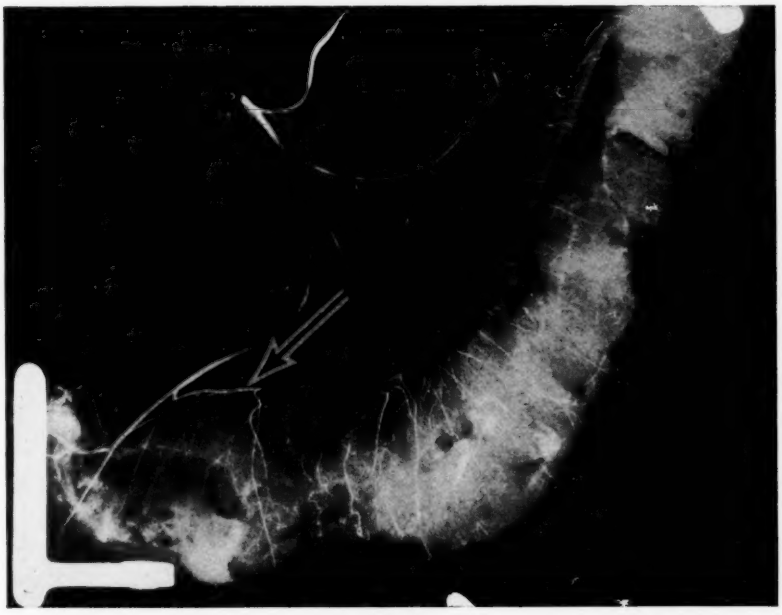

FIG. 1.—Radiograph of an injected post-operative specimen following restorative resection of the rectum. The arrow indicates the arterial anastomosis which exists between the last sigmoid artery and the superior rectal artery.

FIG. 1

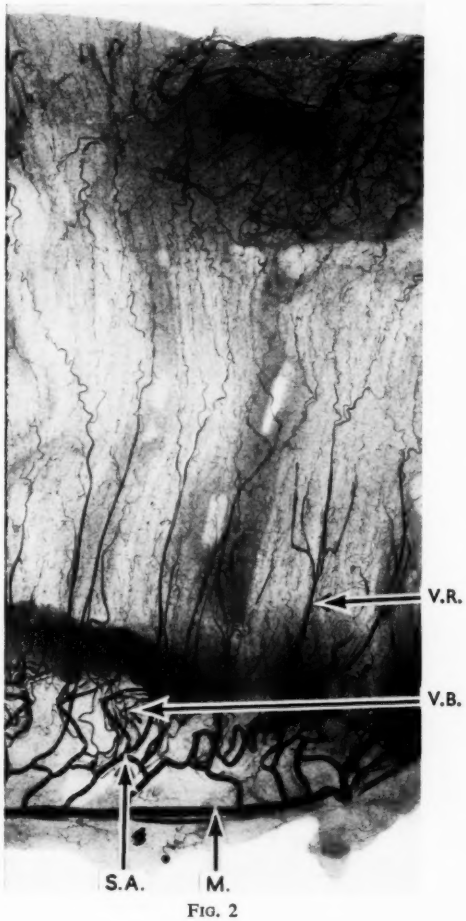

FIG. 2.—Radiograph of a post-operative specimen of the sigmoid colon laid open, demonstrating the long colic arteries, or vasa recti (V.R.), and the short colic arteries, or vasa brevia (V.B.), arising from the marginal artery (M.). Note the arcade formation between the vasa recti, forming a second arcade (S.A.).

FIG. 2

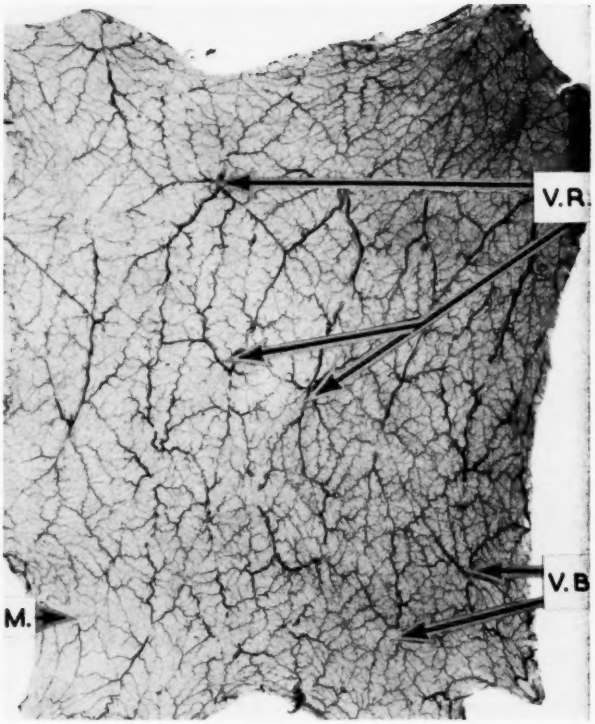

FIG. 3.—Radiograph of the mucosa of the colon which has been dissected off the muscle wall, showing the submucosal plexus. M. is the mesenteric border; V.R. indicates the division of the vasa recti, and V.B. the division of the vasa brevia.

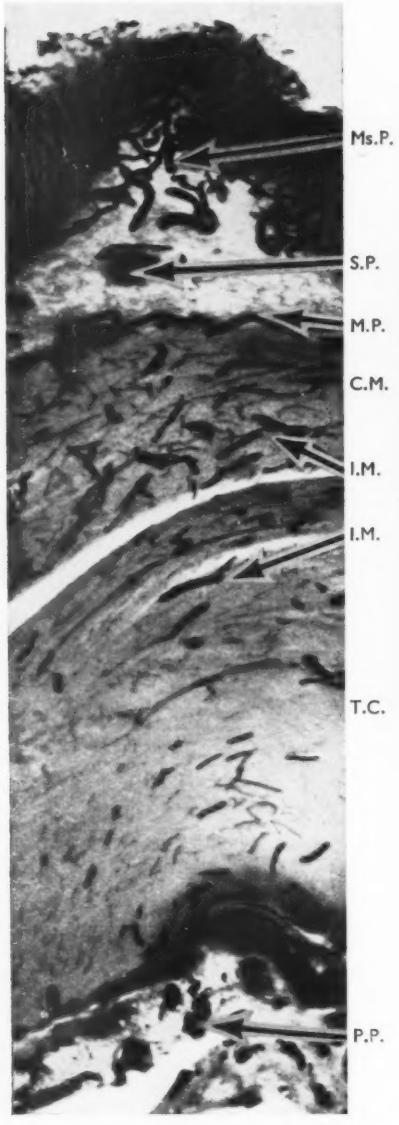

FIG. 4.—Photographic enlargement (×40) of a celloidin section, demonstrating the intramural plexuses of the colon. P.P. is the peritoneal plexus; T.C. the taenia coli; I.M. the intramuscular plexuses; C.M. the circular muscle; M.P. the muscular plexus; S.P. the submucosal plexus; and Ms.P. the mucosal plexus.

FIG. 5.—Photographic enlargement (×76) of a celloidin section, showing the mucosal plexus. Note the fine arterioles (M.) passing upwards to the mucous membrane from the plexus Ms.P. Branches from the submucosal plexus (S.P) feed the mucosal plexus.

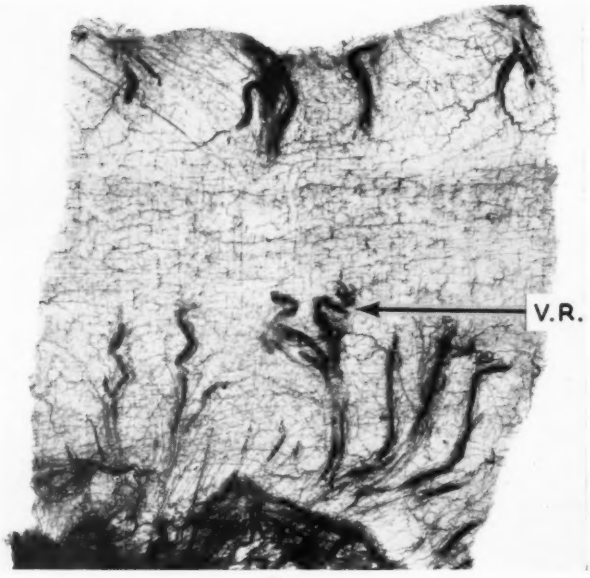

FIG. 6.—Radiograph of the muscle wall of the colon, the mucosa having been dissected free. Note the fine intramuscular plexus only supplied by small arteries from the submucosal plexus, and the point at which the vasa recti (V.R.) pierce the muscle coat.

FIG. 6

and superior mesenteric arteries at their origin. The injection material passed around the marginal artery to the descending colon, demonstrating the effective anastomosis which exists between the middle rectal branch of the internal iliac artery and the superior rectal artery. Injection of the inferior mesenteric artery in six post-operative specimens following synchronous combined excision of the rectum for carcinoma showed filling of the middle rectal arteries through a rich anastomosis with the superior rectal artery.

These findings confirm, contrary to what has been stated by many investigators, that there is a constant and abundant anastomosis between the superior rectal branch of the inferior mesenteric artery and the middle rectal branch of the internal iliac artery. This observation was substantiated on many occasions at operation during restorative resection of the rectum and sigmoid colon, where high ligation of the inferior mesenteric artery had been performed, the distal colon or rectum invariably providing evidence of an adequate residual blood-supply.

These experiments demonstrate (1) the functional anastomosis which exists between the inferior and superior mesenteric arteries; (2) that ligation of the inferior mesenteric artery is a feasible operation; (3) the adequacy of the marginal artery to form a collateral channel; and (4) the presence of an adequate anastomosis between the middle rectal and superior rectal arteries.

Marginal Artery

The marginal artery is the functional vessel of the colon, and the branches of the superior and inferior mesenteric arteries feed the arterial channel running along the mesenteric border of the whole colon. Injection experiments as described above demonstrate the free anastomosis between the superior and inferior mesenteric arteries afforded by the marginal artery, thus enabling any colic branch to be ligated without danger of ischaemia occurring in the colon of a fit patient. Ligation of the inferior mesenteric artery in patients with carcinoma of the distal colon and rectum (Morgan and Griffiths, 1959) has been shown to be a feasible and relatively safe procedure. Sudeck, and later Drummond, described a critical point between the last sigmoid artery and the superior rectal artery, but this is a misnomer, as has been shown by many recent investigations. There is an anastomosis between these two vessels, as demonstrated in Special Plate, Fig. 1. The marginal artery may continue and anastomose directly with the superior rectal artery, or, as is more common, there is an arcade formation supplemented by the recto-sigmoid branches of the superior rectal artery, as shown by Pope and Buie (1929).

During the present investigation into the topographical distribution of the inferior mesenteric artery it was shown by injection experiments and dissections that the marginal artery at the splenic flexure is often poorly developed in a large number of patients. This is of no significance except after ligation of the inferior mesenteric artery during operative procedures on the distal colon and rectum, when the main blood-supply to the distal colon will be via the marginal artery from the middle colic branch of the superior mesenteric artery. In these cases it is imperative to see that the bifurcation of the left colic artery is left intact, to ensure a secondary arcade for the marginal artery in this area.

Vasa Recti and Brevia

The colon is supplied by vasa recti and brevia which arise from the marginal vessels. There is very little anastomosis between these vessels outside the wall of the large intestine, in marked contradistinction to the many arcades which form in the mesentery of the small intestine. The vasa recti, however, do form a few small arcades in the mesentery of the sigmoid colon, as seen in Special Plate, Fig. 2, but they are of no functional value as collateral channels.

The vasa recti, as soon as they arise from the marginal artery, divide into anterior and posterior branches, except in the sigmoid colon, where they may form these secondary arcades. They then pass around on the serosal circumference of the gut before dividing into two or three branches to within a few millimetres of the antero-lateral or postero-lateral taenia of the large intestine and, piercing the circular muscle of the colon, become submucosal. The length of the vasa recti varies with the distance of the marginal artery from the "mesenteric" border of the colon. They tend to be longer in the ascending and transverse colon, as the marginal artery forms loops between the colic vessels in this region; consequently they are farther away from the medial border of the colon. Along the descending colon, however, the marginal artery runs close to the intestine, and therefore the vasa recti are shorter.

The vasa brevia are smaller arteries arising from the vasa recti and not from the marginal artery. They pass directly to the "mesenteric" border of the colon and pierce the muscle coat on either side of the mesenteric taenia to join the submucosal plexus. These smaller vessels are more numerous than the long vessels, and always form a fine anastomotic network between one another on the "mesenteric" border of the colon.

Intramural Plexuses

There are three plexuses in the wall of the colon. The largest and most important is the rich submucosal plexus, which extends as an unbroken "chain mail" throughout the colon. A smaller mucosal plexus is formed under the mucosa, from which the arterioles supplying the mucosa are derived. The muscular plexus, which is not very well developed, lies on the mucosal surface of the circular muscles. The branches of the long and short arteries of the colon pierce the circular muscle coat at four main sites. The larger branches of the long vessels, as they pass into the submucosa, divide into two or three branches which pass directly around to the "anti-mesenteric" border of the colon to anastomose with the corresponding arteries of the other side, thus forming a rich "anti-mesenteric" submucosal anastomosis. Smaller branches pass towards the "mesenteric" border to join with the more numerous, but smaller, branches of the short colic arteries on the "mesenteric" border. The short colic arteries in their turn anastomose with one another on the "mesenteric" border of the intestine (Special Plate, Fig. 3). The main branches of the short and long arteries also anastomose freely with the branches from subsequent arteries on either side, so forming a rich submucosal plexus along the circumference and length of the colon. This arterial plexus resembles that shown by Barclay (1951) to exist in the stomach. Saunders *et al.* (1957), describing their finding of the arterial supply in skeletal muscle, showed a similar meshwork of vessels, which they termed a "macromesh," inside which there exists a further network of smaller vessels termed "micromesh," from which the arterioles supplying the capillaries arise. Inside the "macromesh" of the submucosal plexuses of the colon there are further plexuses which join to form

a fine network of arteries situated immediately under the mucous membrane between it and the muscularis mucosae (Special Plate, Fig. 4). From this plexus very fine arteries pass up into the mucosa vertically from the horizontal mucosal plexus, and in Fig. 5, on the Special Plate, the mucosal plexus can be seen giving off numerous mucosal arteries. The mucosa has a very rich blood-supply, and it is true to say that the mucous membrane rests on a carpet of blood-vessels, as has been well shown by Brockis and Moffat (1958) in their "neoprene" latex injections of these plexuses.

An injection of the venous system shows that the veins follow an identical pathway and pattern to the arteries, forming similar plexuses. The veins drain from the capillary plexus which is in the mucosa itself as small mucosal veins to join the submucosal plexus.

No muscular branches are given off by either the long or short arteries, the circular muscle and the taeniae coli receiving their blood-supply from the submucosal plexus. A muscular plexus is formed from arteries arising from the submucosal "macromesh" on the mucosal surface of the circular muscle, and from this plexus smaller arteries are given off which pierce the muscle to form the intramuscular plexus. Special Plate, Fig. 6 shows the muscle coats of the colon after dissection of the mucous membrane and the submucosal plexus, from which it can be seen that the muscle has a poor vascular pattern made up of small arteries.

Marginal Artery in Operations

Injection experiments have been performed on operative specimens which demonstrate the importance of preserving the marginal artery up to the point at which the colon is divided in operative resection. If a ligature is placed around the marginal artery at the midpoint of an operative specimen of colon, and one end of the artery is injected with a radio-opaque material of comparable viscosity to blood and under pressure equal to that of the patient's blood-pressure, the vessels in the wall of the colon will fill up to the ligature, but there is very little filling beyond this point. From this it can be concluded that there is a poor collateral circulation between the vasa recti and brevia, and, despite the richness of the submucosal plexus, it is too narrow in calibre to allow the development of any extensive intramural collateral. This is in contrast to the intramural collateral that develops in the stomach and to a lesser extent in the small intestine. Care must, therefore, be taken not to ligate the marginal artery proximal to the proposed site of an anastomosis, and it is inadvisable to "clean" the "mesenteric" border of its vasa recti at the site of anastomosis or possibly to damage these vessels by removing the appendices epiploicae, as this would produce ischaemia at the ends of the gut which is being anastomosed.

Many post-operative fistulae occurring after anastomosis in the colon are in part due to the inadvertent devascularization of the ends of bowel following misplaced ligature of the marginal artery. It has been emphasized by Naunton Morgan (personal communication) that the marginal artery should be ligated 1 in. (2.5 cm.) beyond the site of section of the colon, thus obviating the danger of the marginal artery being distorted after mobilization of the colon. It is often difficult to verify the viability of the colon during resection procedures, in particular where high ligation of the inferior mesenteric artery has been performed in operations on the distal colon and rectum. Pulsations of the larger vessels may be markedly diminished because of spasm from handling, and the colour of the large intestine is not always a safe guide; but the adequacy of the blood-supply is really proved by the division of the marginal artery below the selected site of resection, before the application of artery forceps.

Summary

The extramural and intramural vessels of the colon have been reinvestigated, using necropsy and operative specimens injected with "micro-opaque" solution, and a technique of microradiography has been developed to demonstrate the intramural plexuses. The importance of the marginal artery during operative procedures on the colon is emphasized.

I would like to express my appreciation to Mr. C. Naunton Morgan, to Mr. N. K. Harrison, and to the staff of the photographic department of St. Bartholomew's Hospital for their invaluable help in the preparation of this paper.

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INCIDENCE OF SOME AETIOLOGICAL FACTORS IN HUMAN LEUKAEMIA

BY

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Radiations, chemical agents, and heredity are among the factors suspected of being concerned in the cause of some cases of leukaemia. An investigation designed to estimate the incidence of these and other factors in an unselected population has been in progress for some time, and the preliminary results of the first two years are now reported. With the aid of a detailed questionary, interviews were conducted by doctors with as nearly as possible all new patients having leukaemia (including myelomatosis) throughout New Zealand, and with control patients matched for age and sex. The results were centrally coded and analysed. The controls were chosen from hospital patients. Since this might be thought to introduce bias, especially in measuring exposure to drugs and *x* rays, two further control groups were formed to test this possibility. These consisted

(1) of random ambulant patients seen in the surgeries of private doctors, and (2) of hospital patients matched for age and sex with the patients in the former group. The results in all three control series were identical, and the possibility of systematic bias in the controls appears to be excluded.

The questions asked in the interviews referred to personal details, medical, occupational, and family history, and exposure to physical and chemical agents. This report deals with the information obtained on the first 298 patients, who are estimated to represent about 80% of new leukaemia cases occurring in New Zealand in two years. Eventually nearly 90% of all cases in the country should become available for analysis.

Results

Radiation.—No difference between the groups was found in the incidence of diagnostic *x*-irradiation, as assessed either by the type and topographic distribution of the examinations or by the total skin doses received during the 10 years preceding the onset of the disease in question (Table I).

TABLE I.—*Skin Doses Received Over 10 Years from Diagnostic X-irradiation**

Dose (r)	Percentage of Patients Receiving Dose				
	Acute	Chronic Granulocytic	Chronic Lymphocytic	Myeloma	Controls
0	47	41	24·5	30·5	41
1–5	39·5	44	59	48	44
6–10	8	8	10	16	8
11–20	4	6	4	3	6
21+	1·5	1	2·5	2·5	1
Total average annual dose per patient	260 mr				280 mr

* Excluding all examinations made for the diagnosis of the condition in question, and excluding dental *x*-ray examinations.

Skin doses were calculated from the figures of Webster and Merrill (1957) modified for New Zealand conditions. No difference was found in the incidence of diagnostic abdominal irradiation of mothers during the pregnancies leading to the birth of leukaemic children or their controls, but the figures (5 of 43 in leukaemics, 5 of 34 in controls) are, so far, too small for evaluation and do not conflict with those in the much larger series of Stewart *et al.* (1958). There were 21 leukaemic subjects and 8 controls who had had radiotherapy by means of *x* rays. Their doses are shown in Table II. The excess of high doses in the

TABLE II.—*Doses from Therapeutic X-irradiation*

Integral Dose* (mega-g r)	No. of Patients	No. of Controls	Weighted Marrow Doses† (r)	No. of Patients	No. of Controls
Less than 0·1	10	5	Up to 10	11	6
0·1–1·0	2	1			
1·1–1·5	0	2	11–100	2	2
1·6–10	5	0			
11–21·7	4	0	100–1,000	8	0

* Integral dose calculated from first approximation: I.D. = 1·4 × skin dose × field area × ½-value depth tissue.
† Weighted marrow dose: Depth doses weighted for distribution of active marrow in standard man (United Nations, 1958). Bone assumed to be equivalent to 1 mm. Al added to incident radiation.

leukaemia group was obviously significant (corrected χ^2 6.06, $0.02>P>0.01$). No similar difference was found in the incidence of past radium treatment.

Chemical Agents and Drugs.—No difference was found between the groups.

Family History.—A possibly significant excess of first-degree relatives (parents, siblings, children) with cancer was found in patients with chronic lymphocytic but in no other form of leukaemia (36 relatives of 66 patients; 104 relatives of 296 controls. Corrected χ^2 3.75; $P=0.05$). The observed incidence among controls of 35% first-degree relatives with cancer corresponded to an expected figure* of 31%. There were 17 leukaemia patients with four first-degree and 16 second- and third-degree relatives with leukaemia, and four controls with no first-degree and four second- and third-degree relatives with leukaemia. The significance of this excess is doubtful, as there was a deficit of expected relatives* among the control group. Multiple cases occurred in three families.

Mongolism.—Among the leukaemic children there were one mongol and one other feebleminded individual.

Other Factors.—Among 12 Maori patients with leukaemia only one had the chronic lymphocytic form. Among a total of 42 Maori deaths from leukaemia (not in the main survey) registered over five years there was only one certain and one possible death from the chronic lymphocytic form, giving an incidence of 2.5–5%, compared with 25% in the general population. This type distribution resembles that in some other non-Caucasian races (Wells and Lau, 1960). The incidence of past and concurrent cancer was 1% in controls (expected figure, from national statistics, 0.8%) but 19.8% in chronic lymphocytic leukaemia, a very highly significant difference (corrected χ^2 27.713; $P<0.01$), even when allowance was made for the differing age distribution in the two groups.

Discussion

The incidence of recognized causal factors was low in this material. There were nine cases (all treated by radiotherapy) in which radiation may have helped to produce leukaemia. Mongolism is known to be sometimes related to acute leukaemia (Krivit and Good, 1957). Even if we add the doubtful familial cases, there are still only 21 instances (9 radiotherapy, 10 familial, 2 mongol or feebleminded) out of 298 in which the disease could possibly be attributed to known "leukaemogens." This is a mere 7%, and it remains doubtful if further work on similar lines will add greatly to it. On the other hand, our findings make evident the special position of chronic lymphocytic leukaemia: a disease with a characteristic racial distribution, with a very high personal and a possibly raised familial incidence of cancer, and with known distinctive clinical features may well be chiefly determined by genetic factors. Whereas a continuing pursuit of "leukaemogens" does not therefore appear to be a promising way of clarifying the aetiology of leukaemia as a whole, the further investigation of genetic and other factors possibly concerned in its chronic lymphocytic variety may well lead to a clearer illumination of a limited field.

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*Expected figures calculated from: $n=\frac{150 \times X}{Y}$. Where X is the number of known cases of the disease in New Zealand, Y the population of New Zealand, and 150 the known total age in years of the average New Zealand family.

TREATMENT OF THE CHRONIC ALIMENTARY ENTERIC CARRIER*

BY

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The problem of the enteric carrier has exercised many penetrating minds and has evoked a large amount of work, thought, discussion, and compassion, and a sizable literature over the last half-century. Many conflicting views have been put forward in recent years regarding the efficacy of treatment. In Scotland, where standards of health and hygiene are high, the relatively small nidi of enteric carriers probably represent the last stronghold of a disease which in former years has taken its toll of human life and suffering. In the world at large, however, and particularly in the relatively underdeveloped countries, the problem must still be a vast one. The carrier's condition is a danger not only to the community but to himself in the form of restriction, anxiety, and painful and even potentially fatal disease.

Present Investigation

My attention was first drawn to the carrier problem in the course of surgical practice in Bellsdyke Hospital, Larbert, in 1954, by Dr. Alan P. Russell. There was a nidus of nine alimentary enteric carriers—eight faecal excretors of *Salmonella paratyphi B* and one mixed alimentary carrier excreting intermittently *Salm. typhi* and *Salm. paratyphi B*. Eight of them had been discovered during an intensive investigation in 1951, and in May, 1956, a ninth carrier was transferred from another hospital. These carriers were kept in isolation and therefore were excluded from communal social intercourse, group therapy, and rehabilitation. Their restriction was responsible for considerable anxiety and frustration, and prevented advancement in their status within the hospital community. In addition to this, they formed a pocket of potential disease, not only within the hospital but also outside its walls. Indeed, one of the nursing assistants developed overt enteric fever while on leave in Ireland.

In 1954 the question of surgical treatment for the carrier group was discussed, but a study of the recent literature and some of the standard works left one with mixed feelings about the possible benefits of surgery, and no action was taken. In 1956, however, one of the patients developed an acute illness which necessitated surgical treatment as a matter of urgency.

Treatment of Case 1

The patient had an episode of cholecystitis in October, 1956, and in the following January again complained of abdominal pain and developed jaundice, which gradually deepened. Murphy's sign was positive, but the gall-bladder was not palpable. Bile was present in the urine. A plain *x*-ray film showed no evidence of stone. Liver-function tests indicated that the jaundice was of obstructive type, and, as it was persistent, laparotomy was undertaken on February 22, 1957.

The gall-bladder and bile-duct system were found to be distended, fibrotic, subacutely inflamed, and buried in dense adhesions. When the adhesions were being freed it was noted that the duodenum was firmly fixed to the gall-bladder wall. In separating the necrotic duodenum a perforation occurred. This was sutured in two layers. Cholecystectomy and choledochostomy were performed with considerable difficulty. Convalescence was rather stormy.

After operation this patient showed positive stools for four months. Thereafter the stools became persistently negative and have remained so up to the present. It is significant that his post-operative environment was not changed and that he continued to live in the isolation ward with the eight other carriers who continued to excrete the organisms. Even by the most rigid standards, therefore, his carrier state must be considered to have been eliminated.

Treatment of Cases 2–9

In view of the successful outcome of this case it was decided to carry out cholecystectomy, if possible, in all the remaining carriers, and arrangements were made for radiological, biochemical, and histological studies.

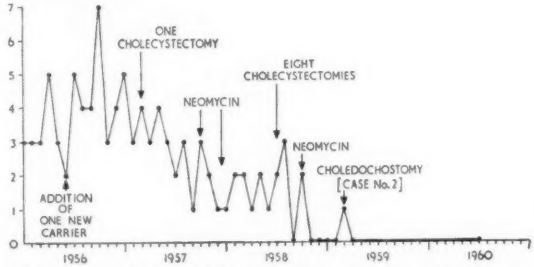
During the treatment and studies stringent aseptic precautions were enforced and the staff involved were immunized. No case of enteric fever or P.U.O. has occurred. As the patients were regarded as a "carrier unit" an antiseptic attack was carried out on their clothing, utensils, and accommodation on completion of treatment.

In June and July, 1958, the remaining eight carriers were submitted to cholecystectomy. The detailed findings are discussed later. No patient died and there was no significant morbidity. On the contrary, it has been generally agreed that the general state of health of the patients is much improved.

Courses of oral neomycin were given to all of the carriers in September and December, 1957, and again in September, 1958.

Results of Treatment

When a new carrier was added to the group the total monthly numbers of positive stools rose (see Chart). The first course of neomycin seemed to cause some diminution in faecal excretion, but *it was only after all carriers had had cholecystectomy that faecal excretion was abolished.*



Monthly total of positive stool cultures in the carrier group.

There seems reason to believe that a post-operative course of neomycin may shorten the period of post-operative persistence of excretion. Since only 3% of the oral dose is believed to be absorbed, the drug probably has its action locally in the bowel, where it kills those organisms excreted with the bile. Case 2 showed a positive stool culture in February, 1959 (see Chart). This patient was the only one who appeared to relapse;

*This paper represents a brief synopsis of a thesis submitted for the degree of Ch.M of the University of Glasgow.

his further progress and treatment are discussed later. Post-operative stool cultures were actually made at fortnightly intervals.

The records showed that none of the patients could be classified as a urinary carrier.

Survey of the Literature

As much of the available literature as possible was obtained. A total of 83 works—most of them in English—were consulted and analysed.

Anton and Fütterer (1888) were apparently the first to show that *Salm. typhi* could be isolated from the gall-bladder in fatal cases of the disease, and Blachstein (1891) recorded that *Salm. typhi* injected intravenously into rabbits soon established itself in the gall-bladder. Findlay and Buchanan (1906) isolated organisms from the gall-bladder 25 years after an attack of typhoid fever and at the same time demonstrated them in the faeces. In some cases—for example, Dudgeon (1908)—*Salm. typhi* had been isolated from the gall-bladder in cholelithiasis where there was no history of typhoid fever. Robert Koch in 1902 had drawn attention to the typhoid patient or convalescent as the most serious source of spread of the disease.

Dehler (1907) reported the treatment of two carriers by cholecystostomy, and Grimme (1908) described the cure of a patient by cholecystectomy. Thereafter reports of single cases and series operated upon occur in the literature. The procedures recommended were cholecystectomy, cholecystostomy, and cholecystectomy with drainage of the common bile-duct. It is interesting to note that pioneering work in this field was carried out in the wards of the Western Infirmary, Glasgow, in 1923–4. Cholecyst-gastrostomy was carried out on two carriers by Mr. Farquhar Macrae, after observing that typhoid and paratyphoid organisms were rapidly killed in human gastric juice. One patient (a typhoid carrier) was pronounced cured, but the other (a mixed carrier) was not, and was subsequently submitted to cholecystectomy with drainage of the common bile-duct. For 14 months the stools were positive on several occasions, but later were negative for three years. A third (paratyphoid) carrier was cured after cholecystectomy and duct drainage.

TABLE I.—*Results of Surgical Treatment of Carriers*

Author	No. of Cholecystectomies	Mortality (if Stated)	Cured		Remarks
			No.	%	
Browning *et al.* (1933)	57		43	75	Review
Senftner and Coughlin (1933)	68	14·7%		68	,,
Hanssen (1935, quoting Berglas)				75	
Hanssen (1935)	5	Nil		100	
R.M.P.A. (1936)		21%		77	,,
Lobsenz (1936)	1	Nil			
Coller and Forsbeck (1937)	18	,,		100	
Lynn (1937)				80–85	Quotation
Levi and Willen (1941)	1	,,			
Vogelsang (1941)	13		8		
Badia (1941)	1	1			
Coller and Crabtree (1942)	18		16	88·9	
Honig (1943)	1	Nil			
Feemster and Smith (1945)	68		63	88·9	Review
Stout *et al.* (1947)	1	,,	1		
Littman *et al.* (1949)	13		12	92·3	
Vogelsang (1950, quoted by Flynn, 1957)				80	
Pearson and Wolfe (1950)	1	,,	1		
Lemmon *et al.* (1957)	4		4	100	
Flynn (1957)	6	1	5	83·3	

The average rate of cure was 85%.

Browning *et al.* (1933) made a comprehensive review of the whole subject of chronic enteric carriers and their treatment.

Surgical Treatment.—Table I presents an analysis of the results of surgical treatment of the carrier state, as extracted from the later literature. While the adequacy of the criteria as regards pre-operative duration of carrier state and period of post-operative observation cannot be regarded as acceptable in all cases, the cure rate from surgical treatment appears to be in the region of 85%.

Medical Treatment.—Early medical measures, which covered a wide field of therapeutic methods, were uniformly unsuccessful. With the introduction of specific therapy in the form of sulphonamide drugs and antibiotics a new era of hope dawned, and it was believed that a drug would soon be found which would eliminate the carrier state. Table II, extracted from the literature,

TABLE II.—*Results of Medical Treatment of Carriers*

Therapeutic Agent	No. Treated	No. Cured	No. Treated	No. Cured
Sulphaguanidine	30	3		
Succinylsulphathiazole	7	0	44	3
Sulphadiazine	7	0		
Penicillin + sulphamerazine	5	3	41	11
,, + sulphathiazole	36	8		
,,	1	1		
Streptomycin	8	2		
Chlortetracycline	2	0	34	3
Oxytetracyline	2	0		
Chloramphenicol	21	0		
Total	119	17		

The average rate of cure was 14%.

shows that of 119 carriers so treated only 17 (14.3%) have been cured. The high hopes held out for modern medical treatment have therefore not yet been realized.

Analysis of Results of Investigations

Excretion Frequency in the Carrier State.—The "excretion frequency" of the carrier state from January, 1956, to the time of cholecystectomy in each of the nine carriers was estimated from the relative numbers of positive and negative stool cultures. The number of positive cultures is expressed as a percentage, and when this figure is allotted to each carrier they can be arranged in descending order of excretion frequency. It seemed pertinent to ascertain whether the severity of the infection in the different carriers, as evidenced by their excretion frequency, bore a significant relationship to the following features, which were recorded for each carrier: (1) pre-operative serum bilirubin; (2) radiological evidence of pathological changes in the gall-bladder and bile ducts; (3) evidence at operation of pathological changes in the gall-bladder and bile ducts; (4) culture of common-duct bile; and (5) microscopical features of the excised gall-bladder.

Pre-operative Excretion Frequency Related to Serum Bilirubin.—There is a tendency to a higher serum bilirubin level in the more persistent carriers (Table III).

Pre-operative Excretion Frequency Related to Radiological Findings.—The radiological findings have been separated into four grades, corresponding to function on oral and intravenous cholecystography. The grades of function are seen to follow closely the excretion frequency (Table III). (Case 8 is the only exception, and it is doubtful whether this patient ingested the oral dye.) The radiological reports, as in the case of all other findings, were made without knowledge of the excretion frequency.

Pre-operative Excretion Frequency Related to Operative Findings.—The excretion frequency was found to be directly related to the naked-eye evidence of disease of the extrahepatic biliary system. (Details have been omitted because of lack of space.)

Pre-operative Excretion Frequency Related to Gall-stones and to Positive Cultures of Common-duct Bile.—Apart from Case 1, in which there was a highly acute cholecystitis, the most persistently positive carriers had one or more stones in the gall-bladder (Table III). Bile cultures from the common duct were positive in the four most persistently positive carriers. It is concluded that living enteric organisms are found in the common bile duct in the carrier state. They can be constantly cultured from this site in the most persistent carriers.

Pre-operative Excretion Frequency Related to Histological Findings in the Excised Gall-bladder.—The excretion frequency (Table III) has been found to be directly related to the degree of inflammatory change in the gall-bladder wall, the constant faecal excretors showing evidence of subacute or acute-on-chronic inflammation, the intermediate excretors showing evidence of mild chronic cholecystitis, and the occasional excretors showing virtually no evidence of the inflammatory process. The changes, which consist of infiltration with plasma cells, lymphocytes, and (in the more constant excretors) polymorphs, often in well-marked "follicle" formation, are of greatest intensity in the submucosa and fade as the deeper layers and serous surface are approached, suggesting that the gall-bladder is infected via the bile and not via the blood-stream. There is no evidence, in the present series, that the intensity of the changes is related to the duration of the carrier state. It seems very doubtful whether any antibiotic could justly be expected to eradicate this type of infection even if it could reach the diseased gall-bladder in sufficient concentration.

Prospect of Spontaneous Cure.—A survey of the monthly records of faecal cultures over the five-year period 1952–6 for the eight carriers shows no evidence whatever of a tendency to spontaneous cure.

Post-operative Observations

In addition to fortnightly stool cultures various other observations were made at monthly intervals.

Liver-function Tests.—During the four months after operation no significant abnormality was observed in thymol turbidity or serum alkaline phosphatase estimations, but in Case 2 the serum bilirubin level was found to be abnormally high and to fluctuate. Since the thymol turbidity and serum alkaline phosphatase levels did not rise, continued ductal infection was suspected in this patient in spite of negative stool cultures.

Blood Sedimentation Rates.—In seven of the carriers these rates remained within normal limits over a four-months' post-operative period, but in Cases 2 and 3 there was a persistent and significant elevation. In Case 3, however, a degree of anaemia was found, and when correction was made for this the elevation was not considered significant.

Widal Tests.—A study of monthly post-operative Widal tests yielded the following information: (*a*) the phenomenon of coagglutination noted by Browning *et al.* (1933) was again seen; (*b*) it was found that a positive "H" titre tended to remain after cholecystectomy; and (*c*) in only one patient (Case 2) was a positive "O" titre found post-operatively, and it was persistent.

Further Progress of Case 2

Although this patient's stool culture was negative after operation, his progress was watched with some concern for the following reasons: (1) he was one of the two most constant faecal excretors; (2) at the original operation the common bile duct had been considerably dilated and had been drained by T-tube; (3) of the nine carriers, his serum bilirubin alone was fluctuating and rising; (4) of the nine, his E.S.R. alone was significantly elevated; and (5) of the nine, he alone retained a positive *Salm. paratyphi B*, "O" titre.

In February, 1959, this patient developed overt relapse and a positive stool culture was obtained. Isolation and barrier nursing were instituted.

On February 8, 1959, intravenous cholangiography was performed to determine whether there was evidence of common-duct scarring, stone, or stasis. The outline of the duct was found to be normal and there was no evidence of stone. At 100 minutes after the injection, however, no dye had entered the duodenum and there was considerable dilatation.

On February 12 a further operation was undertaken. The common bile duct was re-exposed and found to be thickened and distorted. Choledochotomy was performed and the lining was found to be rather vascular and inflamed. No stones were present in the duct or in the right and left hepatic ducts. A fine bougie passed

TABLE III.—*Summary of Results of Investigations*

Case No.	Excretion Frequency %	Serum Bilirubin (mg./100 ml.)	Graded Radiological Findings	Stones	Bile Culture	Histology of Excised Gall-bladder
1	84	10·5	Jaundice	–	+	Focal ulceration of mucosa. Dense infiltration of mucosa with chronic inflammatory cells. Areas of polymorph infiltration. Extension of inflammatory infiltrate between the muscle layers. *Subacute ulcerative cholecystitis*
2	83	0·8	4	+	+	Degenerative change in mucosa which is atrophic. Remnants of mucosa densely infiltrated by chronic inflammatory cells, the infiltration extending fairly deeply to muscularis. Subserous and submucous fibrosis. *Chronic cholecystitis*
3	53	1·0	3	+	+	Marked diffuse chronic inflammatory infiltrate, especially in the mucous membrane. Some oedema between muscle bundles. *Chronic cholecystitis*
4	33	0·8	2	+	+	Mucosa atrophic. Muscularis replaced by connective tissue. Foci of inflammatory infiltrate in mucosa, indicative of continued infection. *Low-grade chronic cholecystitis*
5	23	0·8	2	–	–	Gall-bladder wall very vascular. Sprinkling of chronic inflammatory cells in mucosa, spreading deeply via crypts. One aggregate of inflammatory cells. *Mildly chronically inflamed gall-bladder*
6	14	1·0	1	–	–	Slight fibrosis of submucous, muscular, and subserous coats. No sign of active inflammation
7	10	0·2	1	–	–	Mucosa thin and a little simplified. Partial fibrosis of muscularis. *Some evidence of past inflammation. No sign of activity*
8	10	0·2	?3	–	–	General architecture normal. Gall-bladder thin-walled. Muscle probably congenitally poor. *No sign of infection, past or present*
9	8	0·2	1	–	–	Mucosal pattern complex. The wall showed *no sign of infection, past or present*

into the duodenum after some initial resistance. The anterior wall of the duodenum was therefore incised and choledochal sphincterotomy performed under direct vision. The common duct was drained by a T-tube and the duodenal defect sutured in the transverse diameter. The wound was closed with drainage. The appendix was removed.

No enteric organisms were cultured from bile or appendix, and on histological examination the latter organ showed evidence of only mild previous inflammation.

While the T-tube was in position a solution containing 0.5 g. of neomycin was injected along it twice daily for two weeks and the tube was removed on March 25. Cholangiography, performed before removal, showed free passage of the dye into the duodenum.

Convalescence after this secondary operation was quite uneventful and stool cultures have remained negative until the time of writing. The serum bilirubin has reverted to a fairly constant figure of 1 to 1.5 mg./100 ml., the E.S.R. is receding, and the "O" titre has disappeared from the serum.

Present Position of the Nine Carriers

One carrier has had consecutively negative stools for 37 months since operation (74 examinations); six have had consecutively negative stools for 24 months since operation (48 examinations); one has had consecutively negative stools for 22 months since operation (44 examinations) and one has had consecutively negative stools for 17 months since the secondary operation (34 examinations).

Discussion and General Conclusions

It is now more than half a century since it was first realized that chronic carriers played a part in the dissemination of enteric fever. A study of the role of the gall-bladder and biliary tract over the years has led to the gradual realization of its importance in relation to biliary carriers. It is contended that the present studies establish beyond reasonable doubt its culpability in the alimentary carrier. The carriers have been graded according to their "excretion frequency," and it has been shown that the excretion frequency (intensity of infection) is directly related to the loss of function and degree of pathological change in this organ. In eight alimentary carriers in a mental institution the removal of the gall-bladder and treatment with neomycin has led to the elimination of the carrier state and a cessation of faecal excretion of the organisms. This has been accompanied by improved liver function, improved general health, psychological uplift, and the prospect of free social intercourse, group therapy, and rehabilitation. These results have been obtained without mortality or morbidity. A ninth carrier relapsed at the fourth month after cholecystectomy, but there is now good evidence that he has been cured since the relief of residual biliary stasis by further operation.

From the investigations, several interesting observations are suggested.

1. *Route of Infection.*—The infection seems to be maximal at the mucosal side of the gall-bladder wall as judged by the inflammatory reaction. This is taken as indicating that the gall-bladder is infected via the bile.

2. *Gall-bladder Lesion.*—Although Garbat's "test-tube" theory may be, and probably is, correct, there is in the series a quite definite correlation between the excretion frequency and the degree of pathological change in the gall-bladder wall.

3. *Ducts.*—The course of the case which relapsed (Case 2) indicates that infection may persist in the ducts after removal of the gall-bladder, and especially so if there is a tendency to stasis.

4. *Extrahepatic and Extrabiliary Foci.*—There is no evidence of persistence of infection in any other site in any of the nine carriers, and no evidence to support Badia's (1941) contention that the longer the duration of the carrier state the more likely is the infection to have progressed to the ducts and liver.

5. *The True Intestinal Carrier.*—There is no evidence in the findings to support the view that the true intestinal carrier exists.

6. *Gall-stones.*—The absence of gall-stones is not a contraindication to operative treatment. The incidence of gall-stones in this series suggests that they arise secondarily in chronic carriers, but the first case illustrates the fact that a high excretion frequency and advanced histological changes can occur in a chronic carrier of long standing without the production of stones.

7. *Urinary Overspill.*—The observation of Browning *et al.* (1933) that bacilli occasionally occur in the urine of chronic alimentary carriers was confirmed.

8. *Danger to Carriers from this Latent Infection.*—That the carrier state constitutes a potential danger to the carrier as well as to the community is shown by the fact that the first patient developed an obstructive jaundice, and that three of the carriers had gall-stones and some had attacks of cholecystitis or cholangitis. There seems to me at least as much justification for advising cholecystectomy in chronic alimentary carriers as for advising the operation for chronic gall-bladder disease in the general population.

9. *Surgical v. Medical Measures.*—Efforts to cure the chronic alimentary enteric carrier state have covered a wide field of therapy, and with the discovery of modern chemotherapy and antibiotic agents it seems to have been assumed that it would only be a matter of time before the carrier state could be eliminated by their use. Time, however, passes, and still there are foci of carriers from whom the general medical conscience is conveniently shielded. For them, hope of cure is receding, and it is my belief that they should be promptly afforded the benefits of surgical treatment.

10. *Laboratory Aids.*—The most useful of the various tests which have been employed in the pre- and post-operative investigation of this group of patients have been (1) the serum bilirubin, which showed a higher value in the carriers with a high excretion frequency and a fluctuating and rising post-operative course in the patient who relapsed; (2) the E.S.R., which remained high in the patient who relapsed; and (3) the Widal reaction.

11. *Antiseptic Masking.*—The possibility of masking the carrier state by the use of efficient intestinal antiseptics should be borne in mind.

Carrier Problem in Scottish Mental Hospitals and Abroad

In view of the successful results in the Bellsdyke series of carriers, I carried out a survey to determine the extent of the problem in Scottish mental hospitals. Inquiries were addressed to the superintendents of 38

hospitals and institutions. Thirty-six replies were received, and the following list indicates the numbers of carriers found in three situations:

Baldovan Institution, Dundee	18
Craig Dunain Hospital, Inverness	7
Hawhead Hospital, Glasgow	12
	37

An indication of the extent of the carrier problem abroad is given by the following figures in the literature.

		Estimated No. of Carriers
1937 ..	Baltimore	158
1947 ..	Washington State	38
1948 ..	,, ,, ...	44
1957 ..	Ireland	285

It is suggested that the benefits of the methods outlined in this investigation be extended to other carriers, many of whom are subjected to restriction and anxiety and all of whom harbour potentially serious disease.

Summary

Nine chronic alimentary enteric carriers in a mental hospital have been treated by cholecystectomy and neomycin therapy. In eight cases the carrier state is believed to have been eliminated. In the ninth carrier an overt relapse occurred at the fourth post-operative month, but investigations carried out in the intervening months suggested that his infection was persistent; indeed, his relapse was predicted. After further operation and treatment he is believed to be cured. The results have been obtained without mortality or morbidity.

Radiological, biochemical, bacteriological, and histological investigations have shown that the gall-bladder and bile-duct system are the seat of the persistent infection which is responsible for the alimentary carrier state, and that the degree of infection is proportional to the excretion frequency.

The literature of the past 50 years has been reviewed and a comparison made of the results of surgical and modern medical treatment.

A plea is made for the wider application of this method of treatment.

I thank all those whose co-operation has made this work possible, in particular Dr. Alan P. Russell, medical superintendent of Bellsdyke Hospital; Miss J. G. Ford, the matron; and the medical and nursing staff, especially Mr. P. Daly, my theatre assistant. I also thank Dr. R. Rankin, area consultant pathologist, and his staff, especially Mr. S. Taylor-Duncan; Dr. D. M. Harper, area consultant radiologist, and his staff; Dr. D. Beaton, area consultant anaesthetist; Dr. John Park, former medical superintendent of Falkirk and District Royal Infirmary, who took part in and recalled for me the early work carried out in Glasgow in 1923; and not least a cheerful and uncomplaining group of patients.

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SERUM PROTEINS AND HEPATIC FUNCTION IN PREGNANCY WITH ANAEMIA IN NIGERIAN WOMEN

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In Nigeria, as in several other parts of Africa, anaemia is a frequent complication of pregnancy (Lawson and Lister, 1955). The management of this anaemia has been greatly influenced by the view that it is the result of protein malnutrition and of nutritional liver damage (Woodruff, 1951, 1956).

There is, however, very little information available about liver function and the incidence of protein malnutrition syndrome in pregnant Nigerian women.

Significant changes take place in the serum protein pattern in severe protein deficiency in children (Anderson and Altmann, 1951 ; Edozien, 1960) and in adults (Peters *et al.*, 1927 ; Denz, 1947 ; Walters *et al.*, 1947), the most important findings being hypoproteinaemia and hypoalbuminaemia. The serum protein changes provide a more sensitive index of protein deficiency than haemoglobin concentration, a point clearly shown by the fact that hypoproteinaemia and hypoalbuminaemia are invariable in kwashiorkor, while anaemia is found in only a proportion of cases and severe anaemia is unusual (Trowell *et al.*, 1954 ; Foy and Kondi, 1958). Protein deficiency of a degree sufficient to cause severe anaemia in pregnancy should therefore be associated with highly significant differences in total protein and in albumin concentration between anaemic and non-anaemic pregnant women.

In this paper we record observations on the serum proteins and on liver functions of pregnant Nigerian women, with and without anaemia.

Materials and Methods

The pregnant subjects were Nigerian women, mostly of the Yoruba tribe, who attended the antenatal clinics at University College Hospital and Adeoyo Hospital, Ibadan, in January to December, 1958. All the non-anaemic women had haemoglobin concentration of 10 g./100 ml. (68%) or over throughout pregnancy, while the anaemic patients had haemoglobin levels of less than 10 g./100 ml. at the time of investigation. Some of the pregnant women, both normal and anaemic, had other complications, such as disproportion, which were not thought to have altered the blood picture. Electrophoresis of haemoglobin was done on all the pregnant women, and those with two abnormal genes have been excluded from this series.

The non-pregnant adult women were healthy volunteers, being part of a group of adults who were being used to establish normal biochemical values in Nigerians.

Haemoglobin and haematocrit were estimated by standard techniques as described by Dacie (1956). Plasma iron was determined by the method of Bothwell and Mallett (1955).

For haemoglobin electrophoresis, haemolysates on Whatman No. 3 MM. paper were subjected to a direct current of 0.34 mA/cm. at 200 volts for 15–17 hours, using barbitone buffer (*p*H 8.6 and ionic strength 0.05).

Marrow was aspirated from the left iliac crest and the smears were stained with May–Grünwald and Giemsa stains (Dacie, 1956).

The analytical procedures adopted in this investigation for total proteins and the protein fractions and for liver-function tests have been reported previously (Edozien, 1958a).

Haematological Data

Anaemic Subjects

The haematological data on the anaemic pregnant women are shown in Table I. There were 24 women with a severe degree of anaemia (haemoglobin of 4 g./100 ml. or less), 22 with haemoglobin between 4.1 and 7.9 g./100 ml., and 30 mildly anaemic pregnant women whose haemoglobin was between 8 and 9.9 g./100 ml. at the time of investigation.

TABLE I.—*Haematological Data on Anaemic Pregnant Women*

Haemoglobin (g./100 ml.)	No. of Cases Investigated	Bone-marrow Findings	
		Megaloblastic	Normoblastic
2·5–4·0 ..	24	17	7
4·1–7·9 ..	22	3	7
8·0–9·9 ..	30	—	—
Total ..	76	20	14

The mean corpuscular haemoglobin concentration was between 26% and 35%. Ten patients had a M.C.H.C. of less than 29% : in seven of these who had not previously received therapeutic iron the plasma iron level, except for Case No. 16826 (Table IV), ranged from 74 to 213 μg./100 ml. (normal values: 50–250 μg./100 ml.).

The bone-marrow was examined in 34 cases. This investigation was made in all 24 patients having haemoglobin concentration of 4 g./100 ml. or less, and 17 (70.8%) had megaloblastic erythropoiesis.

Haematological Response to Treatment

Because of the severe degree of anaemia, many patients had to have blood transfusion. In the most severely anaemic women it was necessary to give red cells without increasing the total blood volume (" exchange transfusion "), and such patients were initially treated by a simultaneous infusion of 1,000–1,500 ml. of concentrated red cells and venesection of 1,200–1,700 ml. (W. T. Fullerton, 1960, personal communication).

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All patients were given ferrous sulphate, 180 mg. three times a day, as routine antenatal procedure. Malaria is believed to be a factor in the development of anaemia among pregnant women in Ibadan, and therefore all patients were given a curative dose of chloroquine followed by pyrimethamine ("daraprim"), 50 mg. weekly until delivery. Megaloblastic erythropoiesis was found in 70.8% of the patients with a haemoglobin of less than 4 g./100 ml., and this high incidence is reflected also by the finding of megaloblastic erythropoiesis in 193 (55%) of the 352 severely anaemic pregnant women admitted to University College Hospital in 1958 (Watson-Williams, 1960). Although it has been reported (Berry, 1955) that vitamin B_{12} may be necessary in the treatment of megaloblastic anaemia of pregnancy in Nigeria, this has not been confirmed in Ibadan, and all our patients received folic acid, 10 mg. three times a day by mouth (Watson-Williams, 1959).

In Table II the response of the patients to treatment is summarized. The assessment of response in patients who had initial haemoglobin of 4 g./100 ml. or less is complicated by the fact that nearly all of them were transfused, but it is clear from the results for the other patients that response to treatment was generally satisfactory. All patients who had at least three weeks' treatment achieved a haemoglobin concentration of more than 8 g./100 ml. before delivery, and 75% reached levels above 10 g./100 ml.

Biochemical Results

Serum Proteins in Normal Pregnancy

The mean values, together with standard deviations, for the total serum proteins and the protein fractions in healthy adult women in Ibadan and in normal pregnancy are given in Table III. Compared with adult Europeans, the non-pregnant Nigerian women have lower albumin concentration and higher gamma-globulin concentration, but this is the usual pattern in symptom-free Nigerians (Edozien, 1958b). In pregnancy there is a progressive fall in the concentration of total protein and of albumin and a rise in the concentration of α_1-, α_2-, and β-globulins. These changes are most marked at term. There is also a drop in the gamma-globulin concentration towards the end of pregnancy. These changes are similar to those which take place in pregnant European and American women (Mack, 1955).

Serum Proteins in Pregnancy with Anaemia

Five of the 76 anaemic patients—that is, 6.6%—had total serum protein values of less than 5.5 g./100 ml. and the electrophoretic patterns in these cases resemble the pattern in severe protein malnutrition. Of these five patients, one had iron-deficiency anaemia which responded well to iron therapy, while the remaining four had megaloblastic anaemia and were successfully treated with folic acid plus iron. The anaemia in these patients was therefore due to deficiency of haemopoetic factors and not to protein deficiency. The biochemical and haematological data on these five patients are shown in Table IV.

The remaining 71 patients did not show any biochemical evidence of severe protein deficiency. The mean values for total serum proteins and the protein fractions are compared with values for normal pregnancy in Table V. The differences between the two groups of patients are not statistically significant, and the results thus indicate that most of the anaemic patients were not grossly protein deficient.

Tests of Liver Function

The results of the liver-function tests are summarized in Table VI. Normal pregnancy does not cause significant alteration in the results of the thymol and colloidal-gold flocculation tests. Approximately 10% of the anaemic patients had abnormal sero-flocculation results. Quite clearly, the majority of the anaemic patients were free of severe liver disease, otherwise the proportion of patients having abnormal flocculation reactions would have been much greater. The small increase in the incidence of abnormal flocculation reactions in the anaemic patients as compared with the non-anaemic patients should probably be attributed to the anaemia.

There is a progressive increase in alkaline phosphatase activity. In the second trimester there is an increase of 33% as compared with non-pregnant subjects, in the third trimester there is a twofold increase; and by the end of pregnancy the mean alkaline phosphatase activity is about four times normal mean value. Increase in alkaline phosphatase activity in pregnancy was first reported in 1935 by Cayla and Fabre, and has since been confirmed by several other investigators (Meranze *et al.*, 1937; Bodansky *et al.*, 1939; Young *et al.*, 1946; Hoch *et al.*, 1948; Speert *et al.*, 1950). Our data on Nigerian women are consistent with these reports on European and American women. These changes are probably secondary to the profound alterations in the body's economy of calcium and phosphate which occurs during pregnancy because of the demands of the foetus. The differences in alkaline phosphatase level between the anaemic and non-anaemic patients are not statistically significant.

Normal pregnancy causes increased retention of bromsulphalein. Approximately 35% of the non-anaemic patients have abnormal bromsulphalein clearance. A similar tendency for the normal pregnant women to excrete bromsulphalein less rapidly than the normal non-pregnant women has been reported in America (Christhilf and Bonsnes, 1950). There was no difference in the results of the bromsulphalein retention test between the anaemic and the non-anaemic patients.

There is a slight increase in serum bilirubin concentration in the third trimester of normal pregnancy. In the second and third trimesters there is an increase in the proportion of conjugated bilirubin. The anaemic patients have a significantly higher concentration of bilirubin as compared with the non-anaemic patients, but this finding is not unexpected, because most of the anaemias were megaloblastic, which is usually associated with an increase in serum bilirubin.

Discussion and Conclusions

Our data do not support the view that anaemia of pregnancy in Nigerian women is due to deficiency of protein or to liver disease.

No significant differences in total protein concentration and in the serum protein fractions have been found between pregnant Nigerian women without anaemia and the majority of the anaemic pregnant women. Only 6.6% of our anaemic patients had biochemical evidence of severe protein deficiency, but even in these cases the anaemia was due to deficiency of iron and/or folic acid, and not to deficiency of protein. Schofield (1957)

TABLE II.—*Response to Treatment**

Initial Haemoglobin	No. of Cases	Bone-marrow		Transfusion		Final Haemoglobin (g./100 ml.) of Patients Treated for at Least Three Weeks with Iron, Folic Acid, and Antimalarials			
		Megaloblastic	Normoblastic	Exchange	Simple	>10	9–9·9	8–8·9	Not Followed Up
2·5–4·0	19	13	6	17	1	7	1	0	0†
4·1–7·9	22	3	6	1	1	13	6	3	0
8·0–9·9	30	—	—	—	—	20	3	1	6

* Five patients summarized in Table V have been excluded. † In 11 patients pregnancy terminated within 7 days.

TABLE III.—*Serum Proteins (g./100 ml.) in Non-pregnant Women and in Normal Pregnancy*

	Non-pregnant (75)		2nd Trimester (24)				3rd Trimester (39)				Term† (17)			
	Mean	S.D.	Mean	S.D.	t*	p*	Mean	S.D.	t*	p*	Mean	S.D.	t*	p*
Total proteins ..	7·02	0·41	6·75	0·59	2·5	0·01<p<0·02	6·80	0·73	2·3	0·01<p<0·02	5·94	0·51	9·4	p<0·01
Albumin ..	3·50	0·31	2·66	0·46	10·1	p<0·01	2·61	0·35	13·9	p<0·01	1·87	0·21	20·7	p<0·01
α_1-globulin ..	0·25	0·09	0·35	0·11	4·6	p<0·01	0·38	0·12	6·5	p<0·01	0·44	0·09	7·9	p<0·01
α_2- ,, ..	0·51	0·13	0·78	0·18	8·0	p<0·01	0·82	0·15	12·7	p<0·01	0·82	0·14	8·8	p<0·01
β- ,, ..	0·73	0·18	0·93	0·15	5·0	p<0·01	0·98	0·16	7·7	p<0·01	1·04	0·10	6·9	p<0·01
γ- ,, ..	2·03	0·34	2·03	0·44	0·0	—	2·02	0·49	0·1	0·8< p<0·9	1·75	0·42	2·9	p<0·01

* Test of the significance of difference from value for non-pregnant women. † Blood collected within 12 hours after delivery.

TABLE IV.—*Biochemical and Haematological Data on the Five Anaemic Patients with Total Protein <5.50 g./100 ml.*

Case No.	T.P. g./100 ml.	Alb. g./100 ml.	α_1-glob. g./100 ml.	α_2-glob. g./100 ml.	β-glob. g./100 ml.	γ-glob. g./100 ml.	Plasma Iron µg./100 ml.	Hb g./100 ml.	P.C.V. %	M.C.H.C. %	Marrow	Treatment	Response
21436	5·30	1·90	0·44	0·74	0·75	1·47	—	2·6	8	32	Megaloblastic. Hyperplasia	Exchange transfusion, folic acid, Fe, chloroquine, vitamins	After transfusion Hb 5·3 g./100 ml. P.C.V. 14%. Response to treatment good. Hb 10·7 g./100 ml. M.C.H.C. 32% on discharge after three weeks
22801	3·90	1·10	0·44	0·58	0·76	1·02	—	3·9	13	26	Megaloblastic erythropoiesis	Exchange transfusion, folic acid, Fe, chloroquine, vitamins	Labour followed after exchange transfusion. Did well subsequently on treatment
4363	5·30	1·37	0·38	0·80	1·87	1·87	—	4·0	11	35	Megaloblastic	Exchange transfusion, folic acid, Fe, chloroquine, vitamins	Abortion followed after transfusion. Did well subsequently on treatment
16826	5·40	2·00	0·29	0·69	0·71	1·71	26	3·3	12	27	Normal	Chloroquine, Fe, vitamins	Good response to treatment. Three weeks after admission, Hb 8·7 g./100 ml., P.C.V. 31%, M.C.H.C. 28%
19901	4·30	1·25	0·24	0·35	0·53	1·93	—	4·0	13	30	Negaloblastic	Delivered shortly after admission. Postpartum: exchange transfusion, folic acid, Fe, chloroquine, vitamins	Did not return for follow-up
Mean	4·84	1·52	0·36	0·63	0·73	1·60							

TABLE V.—*Serum Proteins in Normal Pregnancy and in Pregnancy with Anaemia*

	2nd Trimester						3rd Trimester					
	Normal (24)		Anaemic (19)				Normal (39)		Anaemic (52)			
	Mean	S.D.	Mean	S.D.	t	p	Mean	S.D.	Mean	S.D.	t	p
Total protein ..	6·75	0·59	6·67	0·53	0·5	0·6<p<0·7	6·80	0·73	6·69	0·71	0·7	0·4<p<0·5
Albumin ..	2·66	0·46	2·52	0·36	1·1	0·2<p<0·3	2·61	0·35	2·43	0·46	1·4	0·1<p<0·2
α_1-globulin ..	0·35	0·11	0·39	0·11	1·2	0·2<p<0·3	0·38	0·12	0·43	0·15	1·7	0·05<p<0·6
α_2- ,, ..	0·78	0·18	0·77	0·12	0·2	0·8<p<0·9	0·82	0·15	0·84	0·16	0·6	0·5<p<0·1
β- ,, ..	0·93	0·15	0·90	0·21	0·5	0·5<p<0·6	0·98	0·16	0·97	0·22	0·2	0·8<p<0·9
γ- ,, ..	2·03	0·44	2·09	0·47	0·1	0·9<p	2·02	0·49	2·02	0·48	0·0	—

TABLE VI.—*Results of Liver-function Tests*

Test	Non-pregnant (75)	Normal Pregnancy			Pregnancy with Anaemia		
		2nd Trimester (24)	3rd Trimester (39)	Term (17)	2nd Trimester (19)	3rd Trimester (52)	Term
Thymol test: % having turbidity greater than 4 Maclagan units and flocculation greater than one plus	0	1·5	1·5	—	7·5	10·5	—
Colloidal gold: % having flocculation > ++	0	1·5	2	—	9·5	12·0	—
Alkaline phosphatase: King–Armstrong units/100 ml.	7·2±3·5	9·8±3·7	15·0±8·3	24·9±9·2	11·7±5·0	15·3±6·3	—
B.S.P. retention: % having retention of 6% or more	0	30	37·5	—	28·5	38·5	—
Bilirubin (total): mg./100 ml.	0·6±0·3	0·6±0·3	0·8±0·4	—	1·0±0·5	1·0±0·8	—
Conjugated bilirubin: mg./100 ml.	0·2±0·1	0·3±0·2	0·4±0·2	—	0·7±0·4	0·8±0·6	—
As % of total mean value	33	50	50	—	70	80	—

studied 11 anaemic pregnant women in Gambia and treated eight with a high-protein diet for one to three months. He noted no improvement in haemoglobin concentration and also concluded that dietary deficiency of protein is not a cause of anaemia in pregnancy in Gambia.

With the exception of the seroflocculation tests, no significant differences exist between the results of the liver-function tests in normal pregnancy and in pregnancy with anaemia. Of the anaemic patients, 10% had abnormal seroflocculation reactions, but this finding is considered to be secondary to the anaemia. It is clear from the analysis of our results that the majority of the anaemic patients must be free from severe liver disease.

On the other hand, our data show dietary deficiencies of haemopoietic factors—and in particular deficiency of folic acid—to be important in producing the anaemias of pregnancy in Nigerian women.

Summary

The serum proteins and liver function of non-pregnant Nigerian women and of pregnant women, with and without anaemia, have been investigated.

Dietary deficiency of protein and hepatic damage are not important aetiological factors in the anaemias of pregnancy in Nigerian women.

The majority of the anaemic pregnant women had megaloblastic erythropoiesis. The response of the patients to treatment with antimalarials, iron, and folic acid was satisfactory.

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CYCLICAL CUSHING'S SYNDROME

BY

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Though Cushing's syndrome is not uncommon, the following case is most unusual, demonstrating a picture of gross cyclical endocrine activity of an abnormal pattern.

Remissions in Cushing's syndrome are well known. These may be spontaneous, as was seen in one of Cushing's original cases (Cushing, 1932, Case 16), and reference to this type of remission has been made by other workers (Thompson and Eisenhardt, 1943; Anderson and Haymaker, 1944; Plotz *et al.*, 1952; Knowlton, 1953; Crooke, 1958), though the relationship of these remissions to therapeutic measures is uncertain in some of these cases. Remissions induced by removal of the pituitary gland or by bilateral adrenalectomy are quite common, while radiotherapy directed at these sites has been used with varying success (Cushing, 1932; Thompson and Eisenhardt, 1943; Anderson and Haymaker, 1944; Heinbecker, 1944; Sosman, 1949; Cochran *et al.*, 1950; Knowlton, 1953).

Cases with spontaneous cyclical recurrence of symptoms in Cushing's syndrome, while they are stated to occur quite commonly, are rare in the literature. Several cases of this type are recorded (Thompson and Eisenhardt, 1953; Anderson and Haymaker, 1944; Sosman, 1949; Crooke, 1958; Luft, 1958), but only that reported by Anderson and Haymaker (1944) closely resembles the present case. Their patient was a 34-year-old woman who had experienced cyclical recurrence of symptoms of Cushing's syndrome during the 12 years prior to her death. Exacerbations were seen in the spring and summer, with remissions in the autumn and winter. The remissions became progressively shorter, none occurring in the last year of life. Radiotherapy to the pituitary and adrenal glands and treatment with methyltestosterone proved ineffective. Exploration revealed no evidence of either adenomatous or carcinomatous lesions of the adrenal glands, but promoted a remission lasting four months. A right adrenalectomy was then performed, with subsequent improvement, but she died two years later in left ventricular failure. Necropsy revealed hyperplasia of the zona reticularis of the remaining adrenal gland (similar to the changes found in the right adrenal gland after its removal two years previously), and a benign thymic neoplasm. The pituitary showed that in a moderate number of basophils there was cytoplasmic degranulation, vacuolization, and hyalinization. Sections of the hypothalamus showed some changes in the proportion of cell types.

Case Report

The patient was a 59-year-old woman who was 10 years post-menopausal. Her past illnesses included an attack of encephalitis in 1921.

In August, 1953, after a domestic crisis she developed transient ankle and leg oedema of four days' duration. She

was then well until July, 1954, when, after four attacks of left renal colic, a small ureteric calculus was passed. Subsequently she developed vague limb pains for which she received 80 g. of calcium aspirin per day for 10 days, by which time she was nauseated and vomiting, necessitating discontinuation of treatment. Within four days she noticed for the first time facial erythema and oedema, which lasted 10 days. Hospital studies at this time revealed no definite abnormality. Two weeks later her facial oedema and erythema had advanced considerably, facial hirsutism had developed, and she had become frankly hallucinated. Further investigations revealed a mild hypertension—B.P. 170/110 (previously 130/50)—and an elevated 17-ketogenic steroid excretion (26 mg./day). At this time her facial appearance was that shown in Fig. 1.

FIG. 1.—Facial appearance, autumn, 1954.

By December, 1954, she had resumed her normal appearance without receiving any active treatment. She remained well up to July, 1956, when, two weeks after further domestic upheavals, the above picture again recurred, being accompanied by marked nocturia and some gruffness of her voice. Within three months the clinical picture had again completely resolved. In July, 1957, after more domestic troubles, a further relapse occurred, lasting again two to three months. During the winter of 1957–8 she remained well. Her most recent relapse began in July, 1958, after an upset at home and at work, and her appearance at this time is shown in Fig. 2. There was marked facial hirsutism and plethora, with proptosis and chemosis. Her voice was gruff, and she was extremely agitated. There was spontaneous bruising of both legs, and an acneiform eruption was present on her shoulders. No striae or generalized obesity were evident, but definite supraclavicular fatty pads and a small buffalo hump were present.

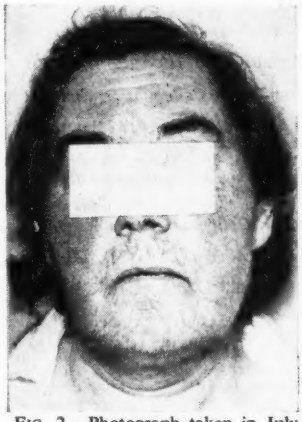

FIG. 2.—Photograph taken in July, 1958, showing marked hirsuties.

Investigations.—17-Ketosteroid excretion, 61 and 40 mg./24 hours. 17-Ketogenic steroid excretion, 84 and 60 mg./24 hours. Urinary aldosterone excretion, 38 μg./24 hours (normal 3–15 μg.). Urinary cortisol excretion, 210 μg./24 hours (normal 15–80 μg.). Serum potassium, 2.3 mEq/l. Serum sodium, 152 mEq/l. Serum chloride, 91 mEq/l. Serum CO_2-combining power 40 m.mols/l. Glucose-tolerance test, using 50 g. of glucose orally; fasting blood sugar, 107 mg./100 ml.; 45 minutes, 130 mg./100 ml.; 75 minutes, 172 mg./100 ml.; 120 minutes, 172 mg./100 ml.; 135 minutes, 200 mg./100 ml.; 195 minutes, 196 mg./100 ml. Routine urine, albumin ++. Water concentration-dilution test, maximum S.G. 1010, minimum S.G. 1001. Blood urea, 28 mg./100 ml. Plasma creatinine, 1.4 mg./100 ml. Creatinine clearance, 44 ml./minute. Plasma proteins, 5.8 g./100 ml. (albumin 3.6 g., globulin 2.2 g.). Serum calcium, 8.6 mg./100 ml. Serum inorganic phosphorus, 1.7 mg./100 ml. Serum alkaline phosphatase, 4.5 King–Armstrong units/100 ml. Serum cholesterol, 198 mg./100 ml. Urine calcium, 358 mg./24 hours. *X*-ray films of chest, long bones, pituitary fossa, and skull, I.V.P., and perirenal air insufflation were all normal. E.C.G. showed changes of hypokalaemia. E.E.G. revealed non-specific generalized abnormalities.

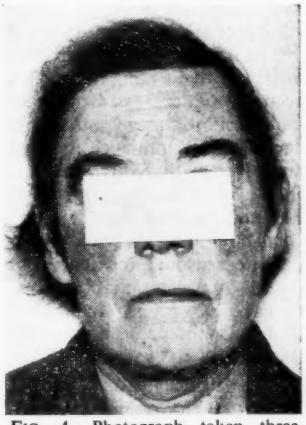

FIG. 4.—Photograph taken three months after starting treatment with cortisone.

FIG. 5.—July, 1959, appearance normal.

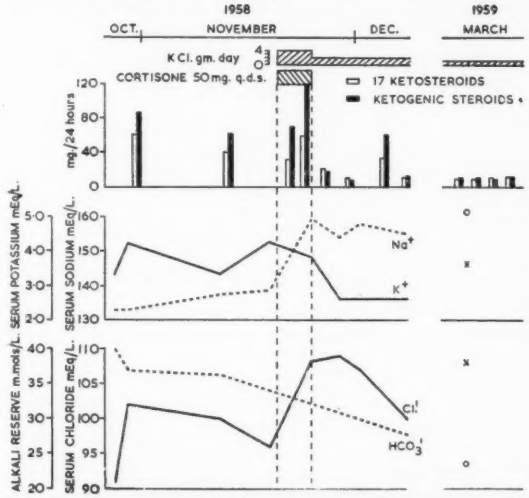

FIG. 3.—Chart showing biochemical results after treatment with cortisone and potassium chloride.

Progress.—The above findings supported the diagnosis of Cushing's syndrome, and in November, 1958, cortisone (200 mg. daily) and potassium chloride (4 g. daily) were given for five days in the hope that a remission might be induced. The biochemical results obtained are shown in Fig. 3. Within two weeks the patient began to feel better, and this improvement was clearly established three months later. During this improvement, as on previous occasions, her facial hair disappeared and at the same time there was considerable loss of scalp hair (Fig. 4). This remission was confirmed by later changes in steroid excretion and blood electrolyte levels, and her appearance in July, 1959, was completely normal (Fig. 5).

Discussion

The unusual features of this case stimulate speculation into the aetiology of the condition and its relation to the more common types of Cushing's syndrome.

The sites of primary disturbance to be considered in Cushing's syndrome are the adrenals, the pituitary, and the hypothalamus (Jailer and Longson, 1957). In this patient, though there is no direct evidence of primary lesions in the adrenals or pituitary, there is some indication that a hypothalamic disorder may be present, as disturbances at this site occur not uncommonly as sequelae of encephalitis.

In addition, variations in endocrine function, particularly adrenal over-activity, including Cushing's syndrome, have been attributed to hypothalamic disorders (Heinbecker, 1944; Wilkins, 1950; Rey *et al.*, 1957). Cyclical variations in hypothalamic activity are well known in animals (Zuckerman, 1954) and may be seen in patients with post-encephalitic Parkinsonism. Furthermore, in hypothalamic disorders psychological factors often influence the course of the disease, and it would seem that this type of stress may have occurred in the present case prior to the onset of each relapse, although in this patient and in the only similar case (Anderson and Haymaker, 1944) the relapses had a definite seasonal incidence. There seems to be little doubt, however, that in the present case a definite remission had been induced by giving cortisone, even though spontaneous improvement had been noticed at this time of the year during previous relapses.

Two further features of this case deserve comment. Firstly, it has been reported that Cushing's syndrome may occur during salicylate therapy (Cochran *et al.*, 1950), and, as moderate doses of aspirin were given to this patient during her initial symptoms in 1954, it was then suggested that salicylates may have been responsible. However, the subsequent course of her disease makes this unlikely. Secondly, a less well known clinical feature of Cushing's syndrome which this case illustrates is the occurrence in the early stages of renal calculi (Albright, 1943; Soffer *et al.*, 1955).

Summary

An unusual example of Cushing's syndrome demonstrating several spontaneous remissions is reported, along with a brief review of the literature on such cases.

We thank Dr. E. Wyn Jones for permission to publish a report on the above patient.

ADDENDUM

After the completion of the above report the patient remained well until July, 1960, when she experienced a further attack of Cushing's syndrome. About this time she also fell and injured her right leg.

In October she was readmitted to hospital as an acute abdominal emergency. At laparotomy, generalized peritonitis due to diverticulitis of the pelvic colon was found, and a transverse colostomy was performed. At this time she still showed all the clinical features of Cushing's syndrome, and a 24-hour specimen of urine contained 64 mg. of 17-ketosteroids and 94 mg. of 17-ketogenic steroids, and her serum electrolytes revealed a hypokalaemic alkalosis.

Her immediate post-operative progress was satisfactory, but on the tenth post-operative day she became hypotensive and died.

At necropsy there was a generalized peritonitis with fibrinous adhesions and a loculated pelvic abscess containing about 500 ml. of pus. The pelvic colon contained diverticula with some diverticulitis. The lungs showed bronchopneumonia, with abscess formation in the left lower lobe. The kidneys were somewhat fibrotic and small abscesses were present at the bases of some of the pyramids. The adrenals were uniformly enlarged to about twice the normal dimensions, the left weighing 12.2 g. and the right 14.7 g. The cortex was thickened and showed bright yellow radial streaks. The pituitary was macroscopically normal and weighed 0.72 g. The thyroid, parathyroids, ovaries, and pancreas also appeared normal. No thymic tissue was recognized. The brain was macroscopically normal and the substantia nigra well pigmented. The head of the right femur was destroyed and the hip-joint contained 20–30 ml. of turbid yellowish fluid.

Microscopical Examination.—The adrenals were of normal architecture, but the cortical cells contained only small amounts of lipoid. The pituitary basophils showed well-marked hyaline changes. No adenomata of the pituitary or adrenals were found. The thyroid, parathyroids, pancreas, and ovaries were histologically normal. Sections of the hypothalamus and mid-brain revealed no obvious abnormality. The lungs showed bronchopneumonia and early abscess formation.

We thank Professor H. L. Sheehan for the post-mortem report and histological studies.

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Medical Memoranda

Imipramine Overdosage—Report of a Fatal Case

Imipramine ("tofranil") is being increasingly used in psychiatric practice. It was introduced into this country in 1959 and has been found to be most useful in depression, particularly when this is endogenous. In a recent trial in this country (Ball and Kiloh, 1959), 74% of cases of endogenous depression showed a good result on imipramine compared with 54% on iproniazid; in addition, 59% of cases of reactive depression did well. The authors concluded that it is worth trying either iproniazid or imipramine in most cases of endogenous depression before trying electric convulsion therapy. Other reports show comparable results, and a large number of patients must now be taking the drug. Side-effects include dryness of the mouth, sweating, dizzy feelings, drowsiness, and nausea. In addition, English (1959) first drew attention to a coarse, often violent, tremor occurring in patients on imipramine. Foster and

Lancaster (1959) confirmed this finding in a group of their own patients, some of whom sustained injuries while taking the drug.

Only two cases of overdosage have been reported. Moll (1959) described the case of a woman aged 21 who took 100 tablets. In spite of gastric lavage, she became stuporous 75 minutes after taking the drug. Salient clinical features were rapid, stertorous respiration, restlessness on stimulation, ataxia, widely dilated pupils with slight but brisk response to light, very brisk but equal reflexes, and extensor plantar responses. There was a typical tonic-clonic grand-mal convulsion lasting 5 to 10 seconds. The patient returned to normal over the course of 36 hours. During recovery her temperature was 99.4° F. (37.4° C.). In the other case (Lancaster and Foster, 1959), a woman of 29 took 1,500 mg. After eight hours of apparently normal sleep she awoke agitated and with gross involuntary movements of limbs and neck. There was increased tone, but reflexes and plantar responses were normal. The temperature was 99.6° F. (37.6° C.). Recovery was complete in about three days, although she remained rather depressed.

CASE REPORT

A woman aged 24 was admitted to hospital as an emergency case on March 14, 1960, at 12.5 a.m. Three months previously it was discovered that she had been taking phenmetrazine ("preludin") for about two years as a stimulant. Since that time she had been under psychiatric care and had been treated with various drugs—chlorpromazine, phenelzine ("nardil"), and, more recently, imipramine, the last having been prescribed three days before. Thirty-six hours before admission she complained of perspiration and slight headache; these persisted until the day of admission. In the evening she went for a walk with her father and complained that the sweatiness and headache were worse, but she was able to complete the walk, and arrived home at about 9 p.m. She said she felt rather sleepy, and was left alone in a room for about 15 minutes, during which time, her parents admit, she had access to her supply of tablets. By the time they returned to the room she was complaining of increased headache, was very drowsy, and, in addition, there were spontaneous jerking movements. Her doctor, when called, found impaired consciousness with extreme restlessness, but the thing which impressed him most was her temperature, which was 106° F. (41.1° C.) (site not named), and he referred her to hospital.

On admission she had an axillary temperature of 106.6° F. (41.4° C.), which soon rose to 109.6° F. (43.1° C.). She was unconscious with rapid, stertorous, but regular respiration. Fundi were normal. Upper lids were half closed; the pupils were widely dilated, with no reaction to light. Jaws were tightly closed. All four limbs showed marked hypertonia in extension and the fists were clenched. There were occasional clonic contractions of the forearms. Reflexes were unobtainable owing to hypertonicity, and plantar responses were extensor. There was no response to painful stimuli. After cooling with iced sheets and a fan, the temperature fell to 106° F. (41.1° C.). However, she died suddenly less than an hour after arriving at hospital.

The immediate diagnosis presented a problem. Three conditions were considered—pontine haemorrhage, acute encephalitis, and poisoning by an unknown drug. The first was regarded as unlikely because of the gradual onset and the state of the pupils. There seemed no way of differentiating the other two conditions. However, a careful comparison of the number of imipramine tablets prescribed with those remaining showed a discrepancy of at least 25, allowing for usual dosage over the previous three days.

Post-mortem Examination.—There was profound engorgement, with cyanosis and petechiae, in the heart, lungs, and liver. In the heart there was terminal dilatation, and in the bronchial tree some excess of mucus. The brain and meninges showed no macroscopic change—notably of encephalitis. The stomach contained a medium-sized food residue, with no pill or capsule separable. In summary, the necropsy findings were those of a drug overdose, and microscopy elicited no further facts. *Analysis:* Tests for aspirin, barbiturate, the amphetamine group, and vegetable alkaloids were negative. The delicate yellow-after-blue tint characteristic of imipramine was obtained from stomach and upper-bowel content, but not from minced liver. It was concluded that the cause of death was hyperpyrexia and central respiratory failure due to imipramine. There was therefore clinical and pathological evidence that the patient died from a drug overdose, and that imipramine was the drug concerned.

COMMENT

The most striking clinical feature was the hyperpyrexia. The axillary temperature reached 109.6° F. (43.1° C.), and it is likely that the body temperature was even higher. Chlorpromazine, which is chemically related to imipramine, is well known for its effect on temperature regulation, and Sigg (1959) stated that this effect occurs but is less marked with imipramine. Domenjoz and Theobald (1959) found that intraperitoneal imipramine produced a fall in temperature in rats, but they did not comment on the environmental temperature. Increase in motor activity is well recognized as an effect in animals (Domenjoz and Theobald, 1959), and also convulsions can be produced or increased (Domenjoz and Theobald, 1959; Van Meter, Owens, and Himwich, 1959). In man the coarse tremor both at rest and on purposive movement have been previously mentioned (English, 1959; Foster and Lancaster, 1959), and it has been noted that convulsions may be induced in epileptics (Kuhn, 1959). In the two cases previously reported, involuntary movements and hypertonia were present and in one there was a type of convulsion.

In the present case there was extreme restlessness followed by hypertonia and convulsive movements. All these factors would tend to raise the temperature in the presence of an impairment of temperature regulation. In addition, the extreme pallor noted in Lancaster and Foster's and the present cases suggests extreme vasoconstriction, which would act in the same direction.

It is doubtful if any measures could have saved the life of this young woman. However, in further cases, in addition to making attempts to lower the temperature, it would be reasonable to diminish the excess muscular activity with a muscle-relaxant drug. This would necessitate assisted respiration via intubation or tracheotomy.

I thank Lord Evans for permission to publish the case, and H.M. Coroner, Mr. A. Gordon Davies, and Dr. Keith Simpson for permission to report the post-mortem findings. I am grateful to the medical department of Geigy Pharmaceutical Limited for much helpful advice.

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Reviews

FOUNDATIONS OF LIFE

Cytology and Evolution. By E. N. Willmer, M.A., Sc.D. (Pp. 430+x; illustrated. $10.) New York and London: Academic Press. 1960.

To do justice to a scintillating book in a few paragraphs is a wellnigh impossible task. Dr. Willmer, of course, stands in the front rank of investigators in the fields of tissue culture, comparative histology, and special-sense physiology. He is also a gifted writer with a profound store of scholarship, which he carries gracefully. No wonder, then, that the reader finds himself hard put to drop this modest volume once he embarks upon its earliest chapters. Whether all of Dr. Willmer's assumptions are justified could be debated at length, but that really is beside the point. He has made out a good story from an unusual angle, and for that we must be deeply grateful to him. Above all, let it be emphasized that this is not a work written for the specialist alone. The weary, practical man will find much to take his mind off his immediate problems once he succumbs to the seductions of Dr. Willmer's arguments, which run something like this.

The key substances in biology are the deoxyribose nucleic acids and their various alliances with proteins which, through their powers of reduplication, determine the continuity of life. In the simplest forms, the nucleoproteins exist in practically a free state. Such is the case with the viruses and some of the bacteria. The next advance in the evolutionary journey sees these proteins enclosed within an inner membrane as a nucleus, whereby it is preserved from direct contact with the cytoplasmic hurly-burly except during the brief periods of cell division. Next comes adaptation to all sorts of environments through the invention of astonishing biochemical mechanisms and the blue-printing of devices—we call these genes—for the inheritance of basic metabolic patterns. By the time the protozoa have established their place in Nature the biochemical foundations of life are largely completed and all subsequent evolution is no more than "variations on a theme or themes already developed."

All such modifications require considerable latitude and plasticity on the part of the organism as it presses onwards towards its evolutionary goal, but sooner or later the problem of stabilization must be faced. This is overcome by masses of cells forming a hollow sphere of mutally adherent units with provision for the regulation of the volume and composition of the fluid contained in this sphere. Such fluid is, of course, part of the colony's environment. A kind of symbiosis is thus set up between cells with common interests even though they possess opposite character, as in the case of amoeboid and flagellate types. From then onwards a single organism can "carry out simultaneously activities which, in earlier forms, could at best only be carried out alternately or intermittently." The crucial deoxyribose-nucleoprotein is further protected by the separation off of germ cells, which literally colonize assigned regions of the organism. Special local environments for particular cells are also mapped out, and gradually a system of gradients is instituted as differentiation goes on. Certain cells, too, become segregated as families sharing hereditary patterns that have been fixed by the action of selection. In this way differentiation provides a means of housing, protecting, and discharging the germ cells, a factory for manufacturing and keeping up the quality of the blood cells, and devices for digesting and absorbing suitable food products and oxygen. Physical stabilization is carried a long way further with the elaboration of neuromuscular and skeletal systems. Nevertheless, throughout the twists and turns of fate, a grotesque economy is preserved, for the materials provided by the cells of the primary differentiations are used over and over again, and, in theory at least, almost any cell, epithelial, fibroblastic, or amoebic, can become a contractile cell, a neurone, or what you will.

Well, that is a bare outline of some of the many exciting ideas that give Dr. Willmer's book a distinction of its own. There are many first-rate illustrations and diagrams, and the tables and index are excellent. The publishers can be congratulated on a good job.

ROY CAMERON.

TECHNICAL AND PERSONAL APPROACHES TO MEDICINE

A Primer of Medicine. Being an Introduction to Clinical Neurology, Alimentary, Respiratory, and Cardiovascular Diseases. By M. H. Pappworth, M.D., M.R.C.P. (Pp. 241. 32s. 6d.) London: Butterworth and Co. (Publishers) Ltd. 1960.

Clinical Medicine, the Modern Approach. By A. E. Clark-Kennedy, M.A., M.D.(Cantab.), F.R.C.P.(London), and C. W. Bartley, M.A., D.M.(Oxon.), M.D.(McGill), M.R.C.P. (London). (Pp. 425+x. 25s.) London: Pitman Medical Publishing Co., Ltd. 1960.

It is convenient to review these two books together, just because they approach medicine from such different points of view. Dr. Pappworth's book is based on his well-known M.R.C.P. course. It includes the facts or essential knowledge which the candidate for the M.B. or M.R.C.P. examination should have, and has been as expertly designed as an Army technical manual. It is written in the belief that clinical medicine is essentially a technical skill and from the observation that many people can drive a car expertly without knowing how the wheels go round. These views are unfashionable at a time when universities are primarily interested in research and it is argued that all students should be taught as if they were going to be original thinkers. Nevertheless, even the most academic of teachers will sympathize with Dr. Pappworth's annoyance when the student who is asked for a simple fact regurgitates a mush of incoherent theory.

As a man who likes things to be precise, Dr. Pappworth is distressed at the confused terminology of adventitious sounds in the chest. It is ridiculous that, at a time when international agreement has been reached about the nomenclature of coagulation factors and abnormal haemoglobins, there should still be disagreement about the meaning of such frequently used nouns as rales and crepitations, adjectives such as moist, coarse, and consonating, and concepts such as the apex beat. I cannot help agreeing with Dr. Pappworth also in his criticism of the ultra-refined description of heart sounds in terms derived from phonocardiography which has been introduced since the war. It is a pity that the practice of listening to the heart and lungs "blind," which was the custom at the Brompton Hospital a generation ago, seems to have fallen into desuetude, for one remains unconvinced that the human ear is capable of making some of these fine distinctions. On the other hand, I am a little surprised that Dr. Pappworth does not

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say more about the measurement of the venous pressure. Before leaving his book, I should add that neurology is fully covered.

Clark-Kennedy and Bartley make an entirely different approach to medicine, the pastoral approach to the patient as a person. The book begins with a general account of the nature of disease. Then follow descriptions of purely functional disorders and of the common organic diseases. The fourth section deals with clinical diagnosis, and the fifth and last with principles of prevention and treatment. While Pappworth uses 241 pages largely in the description of physical signs and their elicitation, Clark-Kennedy and Bartley deal with all medicine in 408 pages. In some parts therefore their book does little more than catalogue diseases, and it is not always up to date. On page 386 on the treatment of ulcerative colitis, corticosteroids are not mentioned and it is said that "all forms of rectal medication are best avoided." This is, however, the kind of book which a senior physician finds difficult to assess, as it is not easy to put oneself back into the state of mind of the student entering the wards, though one clearly recollects the confusion, as of one parachuted into an unfamiliar and exotic landscape. The only satisfactory way to review the book would be after trying it on a group of students. My own remembrance is that what the student wants at this stage is the simplest of maps and the equivalent of a bird-book for the pocket. Building bridges to link up with previous experience and the creation of a philosophy of disease can wait till later. L. J. WITTS.

YAWS

Differential Diagnosis of Yaws. By C. J. Hackett, M.D., F.R.C.P., and L. J. A. Loewenthal, M.D., M.R.C.P., D.T.M.&H. (Pp. 88; illustrated. 17s. 6d.) Geneva: World Health Organization. London: H.M. Stationery Office. 1960.

Dr. C. J. Hackett is a leading world authority on yaws, and any work on this subject with which he is associated will command interest and respect. It may at first be wondered why a book on the differential diagnosis of yaws should now be needed, at a time when the disease is rapidly disappearing from many regions, but its publication is part of a plan for yaws eradication with which Dr. Hackett and the World Health Organization have been much concerned. As yaws becomes progressively less common in many countries, its diagnosis becomes progressively more difficult, and its relative rarity leads to its being overlooked and confused with other diseases. At such a stage, the need is for greater awareness of the disease and its many confusing manifestations. The purpose of this book is to convert such an awareness into ability to diagnose it with confidence, and it does so well.

The lesions likely to be confused with early and late yaws and with yaws hyperkeratoses are described in detail clearly and systematically and are followed by a series of 52 excellent illustrations. Confusion has arisen concerning the plantar lesions in yaws, to which several different terms have been given, and in an appendix summaries of the original descriptions of these lesions are given. These together with the associated commentary effectively clear up the confusion.

The book is intended to be used with Dr. Hackett's earlier monograph, *An International Nomenclature of Yaws Lesions*, and these should together be invaluable to field workers, general practitioners, and specialists in areas in which yaws is found. A. W. WOODRUFF.

THE GLOBULINS

Les Globulines Sériques du Système Gamma: Leur Nature et Leur Pathologie. By J. Heremans. Preface by Professor P. Grabar. (Pp. 340; illustrated.) Brussels: Editions Arscia, S.A. Paris: Masson et Cie. 1960.

This volume contains a survey of the gamma globulins in health and disease, concentrating principally on information gleaned from immunological and immunochemical analyses, and the author's interpretation of these analyses. Professor Grabar, of the Pasteur Institute, while paying a graceful compliment to Dr. Heremans' assiduity, stresses in his preface the important points on which he disagrees with Dr. Heremans, especially in the use of the word "paraproteins." These semantic reservations by such a distinguished man, ones with which many workers in the field would agree, must be taken into account when reading the monograph.

No one to-day doubts the extent to which immunological and immuno-electrophoretic techniques have illuminated our studies of the gamma globulins, but the implications in the author's introductory chapter, coupled with the categorical statement in his short English summary that "classical electrophoresis is no longer considered satisfactory for serum protein studies," is a manifest over-statement. The elegant techniques associated with the name of Tiselius need no champion, nor has it ever been maintained that they do other than measure and compare the mobilities of complex charged macromolecules in solution under controlled conditions with a precision unmatched by any other technique to-day. To set the method aside in the investigation of the serum proteins is about the same as saying that in the clinical assessment of a patient we no longer need to feel or count the pulse.

However, the book is a lucid exposition of the field it champions and brings together data scattered through the literature. Though the title implies that the book is a study of the gamma globulins, a good deal of space is spent on methods of isolation of two specific "beta globulins," the $beta_{2A}$ and the $beta_{2M}$, and to the characterization of the $alpha_2$ globulin. Though techniques of the "isolation" of the $beta_{2A}$ globulin are dealt with in some detail, only passing reference is made to the use of D.E.A.E. cellulose, and no mention of the work of Sober and his colleagues on its application, work which has been readily accessible in the literature.

The first 150 pages of the book are devoted to a detailed appreciation of techniques of isolation and characterization of the globulins, yet, though sialic acid values for isolated fractions are given, neither Svennerholm's name nor his technique is mentioned. Again, the section on the preparation and purification of immune sera—surely one of the most important matters in any immunological technique—is singularly scant. There are no quantitative data on the texture of the antisera used and little more than a table and a diagram or two to describe their characteristics. In 340 pages one would have thought that this important section rated more than two pages. The author devotes 20 pages to the gel diffusion technique, yet nowhere does he make mention of the published and easily accessible pioneer work of Elek in this field—a startling omission.

In the third section of the book, dealing with the distribution and character of the globulins in various diseases, more than 100 pages are devoted to a consideration of the proteins in myelomatosis and the conditions associated with excess of macroglobulins. It is odd,

therefore, to find no mention anywhere in the section of Dent's work on the methionine content of the Bence Jones protein, or that of Islikar on the constitution of the macroglobulins; odd, too, to find the disclosure of abnormality of the serum proteins attributed to Abderhalden and Rostoski in 1905 when Ellinger's work preceded this by six years. The literature of the field is so vast that no author can be expected to cover it entirely, but the examples I have chosen are all in journals of international repute and represent contributions of merit from Sweden, Germany, Switzerland, and Britain.

If all this appears harsh, the harshness springs from the eager anticipation the title of this book roused in the reviewer and his subsequent disappointment. It remains to say that there is a great deal of information beautifully presented of a highly specialized nature; the author and the publishers are to be congratulated on the elegance and accuracy of the material displayed. Alas, the title and the meticulous beauty of both textual style and plates might deceive the uninformed, though this cannot have been the author's intention. This volume is a far from complete picture of our present knowledge of the gamma globulins.

N. H. MARTIN.

ACTION OF INSULIN

The Mechanism of Action of Insulin. A Symposium Organized by the British Insulin Manufacturers. Consulting Editor: F. G. Young, M.A., D.Sc., F.R.S. Editors for the British Insulin Manufacturers: W. A. Broom, B.Sc., F.R.I.C., and F. W. Wolff, M.D. (Pp. 320+xvi; illustrated. 32s. 6d.) Oxford: Blackwell Scientific Publications. 1960.

This book contains the papers presented at a symposium organized by the British Insulin Manufacturers and held in London in September, 1958, under the chairmanship of Professor F. G. Young. The contributors included many leading British, American, and Continental workers interested in the metabolism of carbohydrate, protein, and fat in relation to the action of insulin. Their critical and lively discussions of the papers are included and add greatly to the value of the book.

It would be a mistake, however, to imagine that the mechanism of action of insulin is elucidated in these pages. Indeed, many readers will echo a remark of the chairman's: "I have found that I do not understand a good deal of what I thought I knew before the meeting." There is, however, general agreement on certain aspects, notably on the importance of insulin antagonists and on the role of insulin in protein biosynthesis. Clinicians will be particularly interested in a report on the therapeutic effect of aspirin in diabetes.

The whole book provides a stimulating summary of the attempts being made to solve a problem of fundamental importance to both physiologists and physicians.

J. C. HOUSTON.

DERMATOLOGY CATALOGUE

Basic Office Dermatology. By Stuart Maddin, M.D., Julius L. Danto, M.D., and William D. Stewart, M.D., F.R.C.P.(C.). Forewords by R. F. Farquharson, M.D., and M. B. Sulzberger, M.D. (Pp. 308+xix; illustrated. 94s.) Springfield, Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications. 1960.

There has been a spate of new books on dermatology in recent years indicative of increasing liveliness in that branch of medicine. Many have come from North America, and are good. This volume, as the title would suggest, is very much in the pattern of American presentations. Much thought and hard work must have gone into its composition and it combines a variety of approaches. There are a number of valuable points here and there not commonly found in textbooks, as consideration of a patient's recent travels and advice on care of the skin and hair, and the use of cosmetics.

But the presentation of skin diseases which forms the main body of the book is rather unattractive and reminiscent of a big store catalogue. Each disease is allotted two or four pages and presents a numbered list of what the authors regard as significant facts stated briefly and dogmatically. There follows a similar numbered list of clinical features and of treatments ("office management") devoted almost entirely to local measures. There is a diagram indicating common sites affected and a black-and-white photograph which is usually very good. The repetition of this presentation over nearly 200 pages may appeal to some practitioners as a handy quick reference in the surgery. There are, in addition, short sections on the common affections of particular regions of the body and on procedures employed in diagnostic tests. There is also a separate section dealing briefly with certain special treatment under the headings of anti-eczematous therapy, anti-acne therapy, etc., and there are a few good coloured plates.

The work is deliberately concise, avoiding discussions on aetiology but tending to avoid also the concept of the whole patient.

J. T. INGRAM.

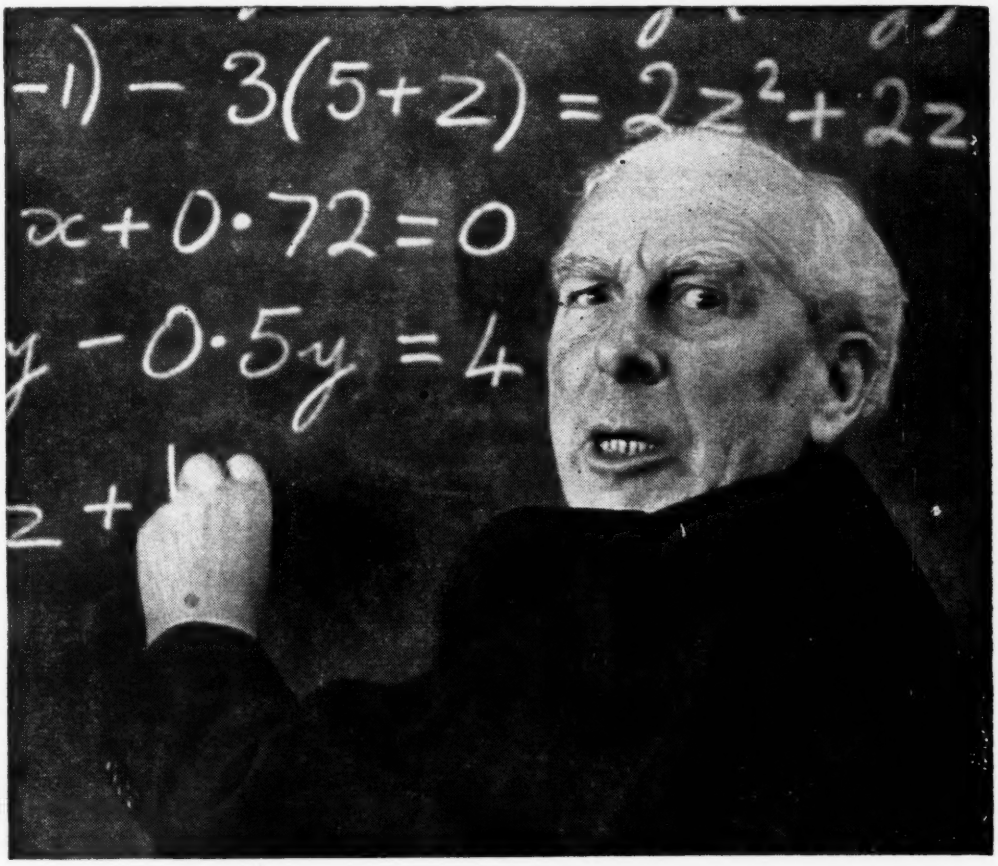
HAND REPAIR

Surgery of Repair as Applied to Hand Injuries. By B. K. Rank, C.M.G., M.S.(Melbourne), F.R.C.S.(Eng.), F.R.A.C.S., and A. R. Wakefield, M.S.(Melbourne), F.R.C.S.(Eng.), F.R.A.C.S. Foreword by Sir Gordon Gordon-Taylor, K.B.E., C.B., LL.D., Sc.D., F.R.C.S., F.R.C.S.(Ed.), F.R.A.C.S., F.A.C.S., F.R.C.S.(Canada). Second edition. (Pp. 284+xiv; illustrated. 45s.) Edinburgh and London: E. and S. Livingstone, Ltd. 1960.

It was with considerable pleasure and profit that in 1953 I read the first edition of this work. Since then it has remained a constant companion, as indeed it must be to most surgeons responsible for the treatment of acute hand injuries.

Against this background it was my privilege last year to spend many weeks in Melbourne, much of it in the company of the senior author of this work. Melbourne is fortunate in having in most of its large hospitals a member of the Rank and Wakefield Unit to care for hand injuries at the time time—very shortly after injury.

In the introduction to their work the authors state that the book is based on their experience of two surgical approaches to the treatment of hand injuries. The first phase occurred during the war when they experienced "the many hazards associated with secondary repair in the wake of infection, long immobilization, fibrosis and joint stiffness. Under these conditions reparative procedures were often attempted in ambitious fashion for some slight improvement in the function of the hand remnant." In the second phase, that it was my good fortune to observe, they had achieved a closely knit organization with many large Melbourne hospitals that allows their surgical team



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ample opportunity for the exercise of their considerable technical skills at the primary operation with, as they write, "vastly improved economy and value to all concerned." The most outstanding example of this approach is their direct primary repair of tendons and nerves severed at wrist level in children. This early approach to the surgery of repair of all injured tissues is without doubt the right approach. The difficulties are first to set up a sound organization that will assure that primary treatment is at the necessary high level of clinical judgment and technical skill. In so far as hand injuries are concerned the authors give a very clear and concise account of the levels to which judgment and technical craftsmanship must reach to achieve the desired results in a very wide variety of injuries to the delicate mechanism of the hand.

The second edition is again clearly written and beautifully illustrated. It is only 27 pages longer than the first edition and happily it is confined to hand injuries alone and has not been extended to other ramifications of hand surgery. Compared with the first edition there are a few new techniques described, notably that of tendodesis to achieve early stability of the terminal interphalangeal joint in some types of profundus tendon division, and there are some new illustrations. One illustration of outstanding practical importance is Fig. 41 on p. 72, showing, I believe for the first time, a very common fault in the application of plaster to rest an injured hand during the early phase of healing.

The second edition confirms one's opinion of the original work. This is without doubt the most outstanding thesis on the surgery of acute hand injury. In addition, it is a very considerable contribution to the principles of the surgery of repair outside the hand.

WILLIAM GISSANE.

The campaign for female emancipation produced some formidable women. They seem to us to-day, looking back over our shoulders, to have had something of the impersonal and heroic proportions of figures in mythology. The woman doctor who is the subject of Cecil and Celia Manson's biography, *Dr. Agnes Bennett*, achieved as much as any more militant suffragette in her fight for the recognition of women doctors and in her long campaign against maternal, infant, and neonatal mortality in New Zealand, and yet she remained a vivid and strictly human personality. Her life spanned an idyllic childhood on Sydney's North Shore (beachcombing for candles from the anchored windjammers and baking oysters on the rocky shore), medical training in Edinburgh, a long career in New Zealand broken by service in the first world war in Egypt, the Balkans, and Great Britain, and later by a peacetime visit to Russia. Her so-called retirement was spent in learning to fly at 66 in order to join the Flying Doctor Service, in signing on at 68 during the second world war as M.O. in a ship bound for Britain, and in answering, at 78, an emergency call for a doctor to be flown to the remote community on the Chatham Islands. To the great pleasure of all her friends she was awarded the O.B.E. in 1948. At the age of 88, she took up nuclear physics. In her student days at Sydney University she was deeply impressed by the casket scene in *The Merchant of Venice*, and, she said, "From then on I only wanted the courage to give and hazard all, to choose the leaden casket, to give rather than to get." Few people can have interpreted a life motto so faithfully. (Dr. Bennett died on November 30 last year, aged 88.) (Michael Joseph; 189+xv pp.; index; price 18s.)

BOOKS RECEIVED

Review is not precluded by notice here of books recently received.

Pages in the History of Chest Surgery. By Rudolf Nissen, M.D., and Roger H. L. Wilson, M.B., B.Chir. (Pp. 166+vii; illustrated. 60s.) Springfield, Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications Ltd. 1960.

Surgical Treatment of Unequal Extremities. By Charles Weer Goff, M.D. (Pp. 184+ix; illustrated. 88s.) Springfield, Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications Ltd. 1960.

The Anatomy of Psychotherapy. Systems of Communication and Expectation. By Henry L. Lennard and Arnold Bernstein, with Helen C. Hendin, M.D., and Erdman B. Palmore. (Pp. 209+xviii; illustrated. 48s.) New York: Columbia University Press. London: Oxford University Press. 1960.

Cancer. Progress Volume 1960. Edited by Ronald W. Raven, O.B.E.(Mil.), T.D., F.R.C.S. (Pp. 242+xv+16; illustrated. 60s.) London, Toronto, Sydney, Wellington, Durban: Butterworths. 1960.

One of Those Children. By Elizabeth Neal. (Pp. 198. 18s.) London: George Allen and Unwin Ltd. 1960.

A System of Medical Hypnosis. By Ainslie Meares, M.D., B.Agr.Sc., D.P.M. (Pp. 484+xvii. 70s.) Philadelphia and London: W. B. Saunders Company. 1960.

The Biologist's Handbook of Pronunciations. By Edmund C. Jaeger, D.Sc. (Pp. 317+xvi; illustrated. 54s.) Springfield, Illinois: Charles C. Thomas. 1960.

Sleeplessness. By F. R. C. Casson, M.B., B.S., D.P.M. (Pp. 87; illustrated. 4s.) London: W. and G. Foyle, Ltd. 1960.

The Hand. A Manual and Atlas for the General Surgeon. By Henry C. Marble, M.D., F.A.C.S. (Pp. 207+vii; illustrated. 49s.) Philadelphia and London: W. B. Saunders Company. 1960.

Proceedings of the Pneumoconiosis Conference held at the University of Witwatersrand, Johannesburg, 1959. Edited by A. J. Orenstein, M.D., D.Sc., LL.D., F.R.C.P. (Pp. 632+xvi; illustrated. £6.) London: J. and R. Churchill. 1960.

The Queen Charlotte's Text-book of Obstetrics. By Members of the Clinical Staff of the Queen Charlotte's Maternity Hospital, London. Tenth edition. (Pp. 533+xi; illustrated. 50s.) London: J. and A. Churchill Ltd. 1960.

Atlas of Human Anatomy. Volume 1: Osteology, Syndesmology, Myology. Eighth edition. Edited by Ferenc Kiss, M.D. and Janos Szentagothai, M.D. (Pp. 297; illustrated. No price.) Budapest: Publishing House of the Hungarian Academy of Sciences. 1960.

Atlas of Human Anatomy. Volume 2: Splanchnology, Endocrine Glands, Heart. Eighth edition. Edited by Ferenc Kiss, M.D., and Janos Szentagothai, M.D. (Pp. 214; illustrated. No price.) Budapest: Publishing House of the Hungarian Academy of Sciences. 1960.

Atlas of Human Anatomy. Volume 3: Nervous System, Vascular System, Lymphatic System, Sense Organs. Eighth edition. (Pp. 289; illustrated. No price.) Budapest: Publishing House of the Hungarian Academy of Sciences. 1960.

Your First Baby. By Daphne F. R. Gale, S.R.N., R.S.C.N., S.C.M. With a preface by Margaret J. Smyth, C.B.E., S.R.N., S.C.M., H.V.Cert. (Pp. 62+ix; illustrated. 2s. 6d.) London: English Universities Press Ltd. 1960.

Radiography for the Veterinary Surgeon. By R. N. Smith, Ph.D., F.R.C.V.S. (Pp. 68; illustrated. 13s. 6d.) Bristol: John Wright and Sons, Ltd. 1960.

The Pharmaceutical Society of Great Britain. Calendar 1960–1961. (Pp. 308+v. 20s.) Cambridge: W. Heffer and Sons, Ltd. 1960.

Origins of Alcoholism. By William McCord and Joan McCord, with John Gudeman. (Pp. 193+xi. 35s.) London: Tavistock Publications Ltd. 1960.

Some Reflections on Genius and other Essays. By Russell Brain. (Pp. 192+vii; illustrated. 30s.) Pitman Medical Publishing Co. Ltd. 1960.

Praktikum der Immunhämatologie. By Professor Dr. med. H. H. Hennemann. (Pp. 148+xii; illustrated. DM. 19.80.) Stuttgart: Georg Thieme Verlag. 1960.

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GENERAL PRACTICE ABROAD

It is possible to define general practice only in the context of the social, economic, and geographical position of any one country, or for that matter of a part of a country. The three articles on general practice, the third of which appears at page 350 of this issue, should be read with this proviso firmly in mind. The general practitioner in an industrial city in Britain is faced with quite a different set of problems from someone practising in one of the more remote regions of Scandinavia or Canada. The terms and conditions of his service will be governed by a number of factors quite independent of the provisions of the welfare state. Our Canadian colleagues would probably define a general practitioner as someone who undertakes medicine, surgery, obstetrics, and gynaecology. And in the outlying parts of that country, as in Australia, the general practitioner may have to do a major operation one day and assume the functions of a medical officer of health the next. In some places the paediatrician will assume the responsibility of a family doctor—that is, of someone who looks after the family as a unit with special responsibility for the care of children. In other centres what our American colleagues call the internist will do much of the work of the general practitioner and refer cases for special treatment to those who share with him a group practice. Yet with these and other differences of emphasis and experience the term general practitioner conjures up the picture of someone who, as a result of a basic medical training, is the first person to whom the sick person goes for advice, and who will be responsible for the continuity of the patient's treatment whether or not that is for the most part being carried out by a specialist. The term general practitioner could be held to connote someone who has not taken up one particular field of study so as to become expert in the diagnosis and treatment of conditions affecting local parts of the body or its systems.

Dr. Fry's article shows that with variations the kind of general practice conducted, for example, in Denmark and Holland bears a fairly close resemblance to general practice as we know it in Britain. But quite a different picture emerges from the more detailed studies made by Drs. H. J. Cronhelm and W. W. Fulton in Canada and the U.S.A. Dr. Fulton's was largely restricted to the U.S.A. and Dr. Cronhelm's to Canada, and the general impression they give is of particular interest in that one of them tends to be critical and the other enthusiastic about the transatlantic scene. The authors would, of course, be the first to admit that a six weeks' concentrated tour could at the best give only a partial view. In Britain we have indeed suffered from the partial view of the operation of the National Health Service held by those who, especially from the U.S.A., have visited this country and on their return home described a situation here which British doctors find difficult to recognize. If, therefore, some of our colleagues in the U.S.A. and Canada may disagree with some of the observations made by Drs. Cronhelm and Fulton, they will at least realize that they are the result of an honest attempt to give readers here at home a faithful description of what they saw, heard, and experienced.

Perhaps the most impressive of the three contributions is that by Dr. Cronhelm, if only for the fact that throughout his stay, principally in Canada, he found himself becoming more and more enthusiastic about the conditions of work and the spirit that prevailed among his Canadian colleagues.

> "There did appear to me," he writes, "to be a real desire amongst general practitioners to keep up to date with recently published work and an enthusiasm for any fresh knowledge which might make their work more efficient and their medical education more complete. This was impressed on me by a young British doctor, who told me that he had done more reading in the 12 months he had been in America than during the previous four years since qualification. Nearly every doctor's office I visited had a bookcase well filled with recent editions of medical textbooks and journals."

The complaint at times heard in Britain and in other countries is that the busy general practitioner has so little time for reading. The College of General Practitioners is indeed making a magnificent attempt to tackle this problem by the formation of journal clubs. Nevertheless, whatever defects there may be in general practice across the Atlantic, we should at least look at the conditions which make it possible for doctors to find time to keep up to date and sustain the enthusiasm with which they entered practice.

For years the B.M.A. has been pressing hard for the entry of the general practitioner into hospital, and no one can fail to be impressed by Dr. Cronhelm's

[1] *Brit med. J. Suppl.*, 1960, 2, 94.

observations in this respect about the conditions in Canada and the U.S.A. He writes: "Perhaps the outstanding difference between general practice in this country and across the Atlantic is that nearly every general practitioner in Canada and the U.S.A. is on the staff of one or more local hospitals, and can admit patients and look after them personally." He notes that the G.P.'s work in hospital is a strong stimulus to postgraduate education: "The thing that impressed me most was the wonderful opportunity for postgraduate education offered daily through the ordinary contacts with colleagues in hospital." And in spite of the high cost of medical care, he found little evidence of a desire among patients for a national health service on the British model. Dr. Fulton puts greater stress upon the economics of medical care in the U.S.A., and much of what he says is borne out by a number of responsible contributions made by Americans themselves on the economics of medical practice in that great country. But he noted that neither patients nor doctors see anything wrong in the profit motive in so far as it exists in American medicine.

Among many of the interesting things he observed nearer home, Dr. Fry draws particular attention to the G.P.s' laboratory in Copenhagen. The G.P., he observes, "is actively encouraged to investigate his own patients, he is given diagnostic aids. This encouragement goes so far that there is no system of out-patient consultations in hospitals and no patient is admitted to hospital until the G.P. has fully investigated his patient and obtained a consultant's opinion." General practitioners in Britain will note that entry into practice in Denmark, as in Holland, is by buying and selling goodwill. In Copenhagen there is a well-organized night-doctor service, which some people think is one of the results of payment by capitation fee. In other parts of Denmark payment is by fee for item of service, and our colleagues there seem to have evolved a satisfactory system of preventing abuse of this method of paying for medical care. But from Dr. Fry's observations it does not appear that the capitation method of payment encourages that mediocrity of practice which an experienced general practitioner, as a member of the B.M.A. Council, criticized recently as one of the results of the capitation system in Britain.[1]

It is much to be hoped that still more general practitioners will be afforded the opportunity which has been so well grasped by our three contributors of going to other countries and seeing at first hand what kind of lives their colleagues live and what kind of work they do. It is only by examining conditions in Britain in the light of such experience that we shall be able to look at ourselves critically with a view to introducing into the N.H.S. more of that clinical opportunity, and the stimulus to good work which comes with it, which Dr. Cronhelm so refreshingly discovered in his visit across the Atlantic. At the same time we have much to offer in return, and when that phrase "socialized medicine" ceases to become a bogy to our colleagues in some other countries they may yet learn a lot from a more dispassionate and objective investigation of what is after all a remarkable experiment—namely, the provision of medical services to a whole population as part of the responsibility a state has for the care of its people in sickness and in health.

E/H

TELEVISION IN MEDICAL EDUCATION

It is high time that the potentialities of television in medical education were examined in Britain. To millions it is merely a medium of mass entertainment. Among these millions are thousands of doctors, medical students, and nurses. How can television be used in hospitals to help them? Many now believe that television is the best method of demonstrating a surgical operation to an audience. The camera installed in the ceiling of the operating theatre, an adjacent control-room, and a classroom for closed-circuit projection should be a standard requirement in all teaching hospitals.[1] Speaking in Belfast recently about television in hospitals, Professor H. W. Rodgers said that it offers us the best hope so far of shortening the medical curriculum and at the same time making it a good deal more effective than it is at present; and Mr. David Patey, at a conference in London last December,[2] emphasized the teaching value of televising operations. All who have seen a surgeon at work on the closed-circuit television demonstrations at recent Annual and Clinical Meetings of the B.M.A. would agree that an atmosphere is created in which the viewer feels himself present at the operation—not watching another colour film but something which is going on "now": he can hear the surgeon's voice coming from a microphone beneath his gown and questions can be put to him: things can go wrong.

There are other parts of the hospital and medical school where the T.V. camera can be put to good use. Some forms of endoscopy lend themselves to

[1] Schafer, P. W., *J. Amer. med. Ass.*, 1953, **152**, 78 and 554.
[2] See *Brit. med. J.*, 1960, **2**, 1798.
[3] Soulas, A., *et al.*, *Dis. Chest*, 1957, **31**, 580.
[4] Moore, P., and von Leden, H., *J. Amer. med. Ass.*, 1959, **169**, 1976.
[5] See annotation, *Brit. med. J.*, 1958, **2**, 1460.
[6] Gershon-Cohen, J., *J. med. Educ.*, 1960, **35**, 172.
[7] Lindblom, K., *Acta radiol. (Stockh.)*, 1960, **53**, 367.
[8] Mallet-Guy, P., *Surg. Gynec. Obstet.*, 1958, **106**, 747.
[9] Ruhe, D. S., *et al.*, *J. med. Educ.*, 1960, **35**, 916.
[10] Holleb, A. I., and Buch, F. B., *J. Amer. med. Ass.*, 1954, **156**, 298.
[11] Report of the First Meeting of the Council on Medical Television at the National Institutes of Health, Bethesda, Maryland, U.S.A. Institute for Advancement of Medical Communication, 33 East 68th Street, New York.

this technique. Good views of the interior of the ear, nose and larynx, and bronchus can be obtained.[3] The viewers can see on the screen what the endoscopist sees with his instrument. An ingeniously designed apparatus comprising lighting equipment, periscope, and T.V. camera mounted on a fibreglass helmet which the surgeon wears (suitably suspended) has been used successfully in teaching otorhinolaryngology.[4] The radiologist equipped with remote control, image intensifier,[5] cine unit, and television camera can sit at his desk and examine a patient who is in another room and in daylight. He can telerecord his findings. With these techniques the radiologist can study his patients in terms of disordered physiology: he can examine the direction and location of shunts in congenital heart disease, the vascular dynamics of the brain and body, and the motor activity of the gastro-intestinal tract, the biliary tract, and the genito-urinary tract.[6] A television camera coupled with an image intensifier has been used for the location and removal of renal calculi during pyelotomy, for the removal of ureteric calculi, for reduction and nailing of fractures, and for studying the emptying of the gall-bladder and urinary bladder.[7 8]

Television has intriguing possibilities in the psychiatric department.[9] No valid psychiatric interview can ever be conducted in the presence of a third person, but a television camera is impersonal, and neither it nor the accompanying apparatus need be obtrusive. The T.V. camera can be operated through a port from an adjacent room, as in the Kansas medical school. Even in a B.B.C. studio—as those who have seen "Lifeline" or "Face to Face" will agree—the camera and microphones pick up the changing facial expressions of patient and doctor, the grimace and gesture, and the whispered confidence. The technique of interviewing, the demonstration of patients, the progress of treatment, and the development of the doctor–patient relationship could all be shown to students by means of television, and have in fact been shown in some medical schools in the U.S.A. But there are important ethical questions to be considered here. The patient must be told about the purpose of the television camera and given an opportunity to refuse to be interviewed or examined in such circumstances. Whether many of them would do so is problematical. The "sentinel" T.V. camera can also be used elsewhere in the psychiatric department—for the observation of the critically ill, the suicidal, and the confused, especially if there is a shortage of nurses.

The medical student, by actually seeing a fibrillating heart, a bronchial tree in spasm, a bolus of food being swallowed, is going to be more impressed and have a better conception of the dynamic nature of bodily processes than by any lecture or diagram. The general practitioner who could watch a weekly lecture-demonstration from a local hospital in his own home could have post-graduate education designed not only for his needs but for his circumstances.[10] In the United States there is a Council on Medical Television which was formed two years ago to co-ordinate the efforts and experience of medical schools and institutions in this field. The report[11] of its first conference at Bethesda, in October, 1959, makes interesting reading and should serve to stimulate the setting up of some similar organization in Britain. It would be a suitable subject of investigation by the Association for the Study of Medical Education.

NEW HOSPITALS

The Minister of Health's announcement[1] that more money is to be available for hospital building is welcome, but, as was asked in the Council of the B.M.A.,[2] is it enough? Mr. H. H. Langston, chairman of the Central Consultants and Specialists Committee, said that the proposals "in no way approached" the profession's own suggested programme. In addition to replacing old and unsuitable buildings, neglected for decades, some considerable expansion would seem to be needed to provide for an increase in the population. For the last alone an estimate of 40,000 more beds in the next 20 years has been suggested.[3] The "expanding programme" announced by the Minister last week (see page 354 of this journal) provides for six new hospitals (including one for mentally subnormal patients) and the development or modernization of twenty-three existing hospitals. This is certainly a stride in the right direction. In fact, as Dr. J. G. M. Hamilton mentioned in the Council meeting, its very size may be a problem to the relatively few architects as well as medical men experienced in this kind of work.

Since the Health Service began, some improvement has certainly been possible, but it has come more from upgrading and reorganizing consultant and specialist services than from laying new bricks. Structural work has mostly taken the form of adaptations of existing buildings and the addition of much-needed new departments, such as out-patient departments, operating-theatre suites, *x*-ray departments, physiotherapy departments, and laboratories. In planning these additions the regional boards have gained much experience, but the work has at times been difficult partly owing to shortage of capital and partly because the siting of buildings has often been a compromise between making them readily accessible to existing

[1] *Brit. med. J.*, 1961, **1**, 265.
[2] Ibid., *Suppl.*, 1961, **1**, 19.
[3] *Brit. med. J.*, 1960, **2**, 789.
[4] Ibid., *Suppl.*, 1961, **1**, 24.
[5] *Brit. med. J.*, 1959, **2**, 1009.

departments yet properly placed in relation to new building contemplated in the future. Now that more money is to be made available, it is possible to plan more effectively as well as more ambitiously, so that the adaptations and additions will tie in better with the larger developments proposed for the hospitals. Thus virtually new hospitals should be created, often on the sites of existing hospitals, which will provide buildings aesthetically and functionally satisfying. Moreover, the new look in hospital planning should permit the regional boards to examine existing hospitals more critically; some have not only come to the end of a useful life but, owing to population movements, must now serve too many or too few people.

The boards should now find it easier to plan the hospital services to meet these changing needs. They will also be better able to reassess their requirements on a regional basis and to reduce any surplus provision in the areas where the population has decreased, at the same time expanding it in the areas where the population is growing. Opinion in the profession on what is most urgently needed has recently been collected by the B.M.A.[4] and in summarized form submitted to the Porritt Committee:

"There is a need for extensive new building and modernization of hospitals, most urgently in respect of casualty and orthopaedic departments, geriatric departments, obstetric departments, psychiatric reception units, and long-stay mental annexes. Day hospitals are needed in certain specialties (especially geriatrics and psychiatry), and hostel-type accommodation should be provided in conjunction with particular units.

"Hostels where out-patients can spend the night while having investigations undertaken are desirable, as hospital beds would be saved. The accommodation could also be used for relatives accompanying a seriously ill patient brought to hospital as an emergency case.

"In view of the changing pattern of medicine and the urgent need for more hospitals, consideration should be given to the advisability of erecting more prefabricated hospitals instead of permanent buildings which may become out of date within a few decades."

Expansion of the services to meet what has been called the "ever-growing national epidemic of injuries from accidents"[5] deserves special emphasis. Regional boards are alive to this problem and should now find it possible to do more to provide, in collaboration with general practitioners, an up-to-date life-saving service.

CHROMOSOME ABNORMALITY IN CHRONIC MYELOID LEUKAEMIA

A striking new development in research into the causation of chronic myeloid leukaemia has recently been reported from America,[1] and at once confirmed in Great Britain.[2] A consistent abnormality has been found in the chromosome complement of leucocytes cultured from peripheral blood or the bone-marrow. In many cells of the culture a minute chromosome replaces one of the four smallest autosomes. P. C. Nowell and D. A. Hungerford,[1] from Pennsylvania, found that it was present in seven patients (five male and two female) with chronic myeloid leukaemia, but not in four cases of acute myeloid leukaemia in adults or in six cases of acute leukaemia in children. They note that, in most of these cases, cells with normal chromosomes were also seen, suggesting that the minute chromosome is not part of the normal chromosome constitutions of these patients. A. G. Baikie and colleagues, at Edinburgh,[2] have made the same observations, that an unusually small chromosome is a characteristic of many patients of both sexes with chronic myeloid leukaemia, and that it is present, in different patients, in from 1 in 7 to 48 in 50 cells.

The simplest explanation of this small chromosome is that it is one of the four smallest autosomes (pairs 21 and 22 on the Denver classification) which has lost part of its length. The Edinburgh team have examined the chromosomes in cells from skin cultures of three of these patients and found no abnormality, confirming that the abnormality represents a somatic mutation and is not part of the individual's original genetic constitution. Mongols, who typically have trisomy of autosome 21, tend to develop leukaemia, and also have polymorphonuclear leucocytes which show deficient nuclear lobulation. Baikie and colleagues therefore make the interesting suggestion that the minute chromosome is derived from one of pair 21, and that in chromosome 21 there is a locus concerned with some aspect of haemopoiesis.

1 Nowell, P. C., and Hungerford, D. A., *Science*, 1960, **132**, 1497.
2 Baikie, A. G., Court-Brown, W. M., Buckton, K. E., Harnden, D. G., Jacobs, P. A., and Tough, I. M., *Nature (Lond.)*, 1960, **188**, 1165.

DRUGS FOR PRIVATE PATIENTS

The case for drugs for private patients, which recently had seemed to be making progress, received a setback last week in the House of Lords. In an exchange of questions and answers, which we report on another page (369), Lord Hailsham said that losing an election absolved a party, or at all events the Conservative Party, from its pre-election promises. He was referring in this instance to his party's promise in its 1949 policy manifesto, "The Right Road for Britain," that it would allow private patients to obtain free of charge drugs prescribed by their doctor on a parity with people in the State scheme. Whatever may be the rights or wrongs of Lord Hailsham's pronouncement in relation to the rules of party political campaigning, its application to this particular promise has provoked some sharp political comment. Those who support this measure, and they include a large number of Conservatives, will regard this latest piece of Government evasiveness as further perpetuating an injustice which has already continued too long.

Mr. Bevan's White Paper explaining the National Health Service Act promised that "all the service, or any part of it, is to be available to everyone." When it came to the point, however, it was found that, according to the Act, the words "or any part of it" in the White Paper could not be applied to drugs for private patients and that amending legislation would be

1 *The Campaign Guide*, 1959. Conservative and Unionist Central Office, London.

necessary for this. It was this need that inspired the Conservative pledge in 1949, and it has never, until now, been repudiated. Each year from 1948 onwards the Representative Body of the B.M.A. has resolved with increasing emphasis that as a matter of justice private patients should have their drugs free. Equally regularly the Government has found excuses for doing nothing.

The Tory Party's 1959 election campaign guide[1] had this to say: "Successive Ministers of Health have said that there is nothing contrary to Conservative principles in the supply of drugs through the National Health Service to private patients, but that a number of difficulties arise." As examples of these difficulties the cost ("between £1m. and £2m."), priorities in expenditure, the need for amending legislation, and the need to have a check on private doctors' prescribing were mentioned. Long ago the Ministry of Health and the B.M.A. agreed on ways for checking extravagant prescribing, and these were accepted as reasonable by doctors in private practice. This obstacle therefore no longer exists. The cost cannot be accurately estimated, but it should not be impossible to narrow it down to a figure on which a decision could be made, taking other Health Service needs into account. Amending legislation is the least of the difficulties. The issue is plainly one of justice and good faith, and it is not to the Government's credit that it persistently tries to wriggle out of its promise.

PUBLIC HEALTH SALARIES

Doctors employed in the public health service have had the best of reasons for feeling disgruntled about their remuneration. Their salaries have been, and are, too low. Time and time again attempts have been made to get the associations of local authorities to recognize the principle that the pay of their medical officers should be related to that of other doctors employed in the National Health Service. But the opposition has been too strong, and the public health service has suffered as a result, though by constant hard bargaining the representatives of the service, either in the Industrial Court or in Whitley Committee C, have succeeded in gaining some substantial awards.

Doctors in the public health service were bitterly disappointed that they were excluded from the deliberations of the Royal Commission on Doctors' and Dentists' Remuneration. But as soon as the Royal Commission had reported and the Government had accepted its recommendations, a claim on behalf of public health medical officers was prepared. This claim was submitted four months ago, and the new salary scales which have now been agreed are published in this week's *Supplement* (p. 33). They are not in answer to the original claim, on which negotiations may still continue, but the Staff Side decided it would be wise to accept without delay the Management Side's offer to increase all existing scales by 12½%. Most members of the public health service will probably agree that this decision was the right one and will be grateful to their negotiators for what has been achieved.

As can be seen from the table printed in the *Supplement*, the minimum commencing salary for a medical officer of health of an area with a population under 75,000 is £2,170, and £3,450 for the medical officer of health of an area with a population between 400,000 and 600,000. As in the past, no scale of salaries is fixed for areas with populations over 600,000. The new scales are for the most part a little over 50% more than those in force on April 1, 1951, which was the baseline for the profession's case to the Royal Commission. In the same period the maximum of the basic salary scale of consultants has risen by about 42%, including the Royal Commission's award, so on that basis the public health service appears to have done well. But in 1951 the remuneration of medical officers in the public health service was relatively low compared with the rest of the profession. The new scale for assistant medical officers is £1,295 to £1,845, an increase at the maximum of 60.4% over 1951. Nevertheless assistant medical officers have had to wait until 1961 to attain a maximum salary more than that claimed for them (£1,680) by the Staff Side of Committee C in 1950. If past history is anything to go by, the representatives of the public health service will have to be prepared for further long struggles in order to secure the financial recognition that all their colleagues agree should rightly be theirs.

MEDICINE BROADCAST

A committee under the chairmanship of Sir Harry Pilkington (who was formerly chairman of the royal commission on medical remuneration) is at present considering the future of sound and television broadcasting in the United Kingdom. It is looking into many aspects of the subject, including the possibility of setting up another television channel. Since the doings of doctors vie with those of cowboys, comedians, and quiz-masters for the public's attention, it is important that a responsible statement of the medical view should come from the profession. The B.M.A. has therefore submitted to the Pilkington Committee a memorandum of evidence (summarized in the *Supplement* at p. 38).

Perhaps one of the most important sentences in the memorandum is this: "Every member of the vast audience attracted by these programmes is a potential patient." Two corollaries stem from it immediately. The first is that no medical man, whether real or fictional in the programme, should in any way come between the patient and his own doctor. The programme "Emergency Ward 10," whose authors are specially praised in the B.M.A.'s memorandum, sets an example in this respect. Like a good novel it offers a world into which the audience can enter; it does not as a rule step into the audience's world. Again, the B.M.A. is obviously wise to insist that broadcasting companies should not forward correspondence to medical broadcasters. The second corollary of bearing in mind this very varied audience of potential patients

is that programmes should be carefully devised to avoid alarming them. The realism of serious operations can be as damaging as claptrap about wonder drugs.

On the question of the anonymity of medical broadcasters the memorandum sets out its endorsement of B.M.A. policy. This is that "anonymity should be observed by the medical profession as a general principle." Departures from it are permissible only when "the objective of publicity . . . is apparent, paramount, and justifiable"—in the interests of public and profession. The decision in any given case must naturally be left to the individual doctor, but the memorandum states that "anonymity is essential only when the content and nature of the programme is such that mention of a doctor's name is likely to result in his 'obtaining patients or promoting his own professional advantage,' or is appearing to be for this purpose."

Every year many millions of pounds are spent on advertising patent medicines on television. Medical men have watched this with considerable misgivings, for though, on the whole, the advertising keeps somewhere near the precepts of being "legal, clean, honest, and truthful," the tendency is to create a fear of illness in some members of the audience, or to draw attention to otherwise insignificant aches and pains—to foster the delusion that medicine-taking is a part of healthy living. In this respect television advertising does not differ from newspaper and magazine advertising; the trouble is that its stare is more hypnotic. The memorandum is strongly in favour of prohibiting any advertisements on television for drugs and medicinal treatments. But, regarding this as an ideal unlikely to be achieved, it recommends the setting up of a committee, with doctors in the majority, to scrutinize all advertisements for such preparations.

TREATMENT OF ALOPECIA AREATA

Though the diagnosis of alopecia areata is easy, its aetiology is obscure and treatment unsatisfactory. Heredity may play some part: H. Brown[1] in 1928 reported it in the forebears of 28 out of 135 patients with the disorder. Older writers have postulated some infective agent and have reported epidemics of alopecia, or cultured specific micro-organisms, but most of these reports are considered suspect by modern criteria.[2] The most popular theory to-day is that of a psychogenic origin, but this has recently been vigorously opposed by at least one psychiatrist.[3] Even if we accept the psychogenic theory the exact peripheral mechanism is difficult to explain, though French writers have suggested an underlying vasoconstriction and claimed cures from the local injection of vasodilators.

Recently E. J. Van Scott and T. M. Ekel[4] examined the volume and number of mitotic cells in the hair matrix (the lower part of the bulb) and in the dermal papilla. In alopecia areata both matrix and papilla were small, but the degree of reduction of the matrix was greater than that of the papilla. After patients had been treated for three weeks with prednisone the volume and number of cells in the matrix had increased towards the normal value, but the papilla had remained unaffected. In previous work Van Scott[5] had demonstrated a perivascular amorphous degeneration in the connective-tissue stalk of the papilla in alopecia areata and believed this to be of primary importance. How prednisone exerts its beneficial effect on the growth of the hair is uncertain; possibly it prevents the cellular infiltration or inhibits the perivascular degeneration, though this does not explain the papilla's failure to increase in size. S. Rothman,[6] in discussing the above, suggested that alopecia areata was due to a displacement of melanin from melanocytes and a subsequent allergic reaction to this; cortisone might then act as an anti-allergic and anti-inflammatory agent. O. Braun-Falco and H. Theisen[7] produced alopecia in rats by injecting enzyme inhibitors and found the matrix cells to be most sensitive to metabolic upsets.

Whatever may be the exact mechanism of alopecia areata, cortisone appears to protect the hair follicle from damage without influencing the underlying cause. C. J. Dillaha and S. Rothman[8] observed regrowth after treatment with cortisone in 16 out of 22 patients, but it was mostly patchy and the hair fell out when treatment was stopped. To avoid side-effects, local applications were tried, but without effect. However, intradermal injections of hydrocortisone proved more successful; C. Huriez and F. Desmons[9] claimed some regrowth in 73% of cases. W. Frain-Bell[10] treated a series of about 60 patients with injections of hydrocortisone acetate and presented one of them who showed permanent regrowth at a meeting of the Royal Society of Medicine. His final impression[11] was that hydrocortisone by injection accelerated regrowth of hair in those cases that presumably otherwise would have a good prognosis; but that it had no satisfactory effect, other than producing a variable initial regrowth, in those cases with presumably a bad prognosis. More recently A. Risse-Sundermann[12] has claimed good results from intradermal injections of 10 mg. of microcrystalline prednisolone trimethylacetate, given daily for several weeks and then in less frequent doses. After about 10 days a local depression in the tissues was seen, and the growth of dark hairs occurred after three to six weeks. All of 21 patients treated responded in this way, and during two years of observation none lost the hair in the injected areas, though no hair regrew on the non-injected patches. Despite such findings this method of treatment has not found much favour among British dermatologists, since any regrowth is patchy and the ultimate prognosis is probably not materially affected.

[1] Brown, H., *Brit. J. Derm.*, 1928, **41**, 299.
[2] Behrman, H. T., *The Scalp in Health and Disease*, 1952, St. Louis, p. 371.
[3] Macalpine, I., *Brit. J. Derm.*, 1958, **70**, 117.
[4] Van Scott, E. J., and Ekel, T. M., *J. Invest. Derm.*, 1958, **31**, 281.
[5] —— ibid., 1958, **31**, 35.
[6] Rothman, S., ibid., 1958, **31**, 287.
[7] Braun-Falco, O., and Theisen, H., *Arch. klin. exp. Derm.*, 1959, **208**, 317.
[8] Dillaha, C. J., and Rothman, S., *J. Amer. med. Ass.*, 1952, **150**, 546.
[9] Huriez, C., and Desmons, F., *Bull. Soc. Derm. franç. Syph.*, 1953, **60**, 436.
[10] Frain-Bell, W., *Brit. J. Derm.*, 1957, **69**, 66.
[11] —— personal communication, 1960.
[12] Risse-Sundermann, Alberta, *Germ. med. Monthly*, 1960, **5**, 221.

GENERAL PRACTICE IN EUROPE*

A JOURNEY IN COMPARISONS

BY

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Since even before its introduction in 1948 our National Health Service has been subject to more criticism and comment (more unkind than kind) than any other of our national institutions. In all this the G.P. has come in for more than his share of abuse. It has been implied that standards in general practice have fallen, that many more patients are being referred to hospital, that practice premises are poor, and that many improvements are necessary.

As a practising family doctor in our N.H.S. I have never been convinced by these criticisms and for a long time I have wanted to go and see for myself how our methods of general medical care compared with others considered to be the best. The opportunity came with a World Health Organization Fellowship in October, 1960. I was able to spend a week each in Holland, Denmark, and Sweden, visiting family doctors and watching them at work; seeing what medical services were available for the ordinary man in the street and his family, and what preventive care was going on to keep them healthy; and observing the inter-relations between the general practitioners and the hospitals and the social services.

The Countries

The medical services of a country must always be related to social, economic and historical backgrounds. Holland, Denmark, and Sweden were chosen because it was considered that they had many points of similarity with Britain. All had a Western European outlook and culture. Economically there were close ties with Britain and the basic standards of living were very similar.

There were also natural differences. All were very much less densely populated. The population of Holland is nearly 11 million, that of Denmark is 4½ million, and that of Sweden 7½ million (compared with 50 million in U.K.). Compared with our area of 93,000 square miles, the area of Holland is 13,514 square miles, of Denmark it is 16,608 square miles, and Sweden is 173,436 square miles.

All are industrial and agricultural countries, but nowhere is there any industrialization as intense as in Britain. Apart from a marked absence of atmospheric pollution, the climate in all three is similar to ours.

Medical Services

Some form of medical insurance exists in all three countries. Only in Sweden is it compulsory to include the whole population. In Holland and Denmark only those earning less than (approximately) £750 join the medical insurance scheme. This covers more than 75% of the population. Those in the higher social scales usually take out private insurance cover for hospital care. Private practice still accounts for more than 25% of the work in general practice.

These insurance schemes are administered by "sick clubs" or "sick funds" along lines similar to those that existed here before the N.H.S.

The contributions from the patients depend on their incomes. As a rule the contributions work out at about 5% of the worker's salary (half the contribution being paid by the employer).

The benefits are comprehensive, but not so comprehensive as under the N.H.S.

General medical care is given by doctors with whom the patients register in Holland and Denmark. The doctors receive a capitation fee (of about 25s.–30s.). In Denmark this fee applies only to those aged 16 and over (in sparsely populated rural areas there is also a fee-for-service). In Sweden there is a fee-for-service scheme, the patient having to pay the doctor and then claiming 75% back from the sick club.

Hospital care is more or less free. In Sweden there is a small (5s.) daily contribution for in-patients, and in Holland patients are only allowed free care up to 70 days.

Consultants' fees are paid by the sick clubs, but the methods differ in the three countries.

Patients have to pay a good deal for drugs. In Holland and Denmark only a few "life-saving" drugs are free. Most other drugs have to be paid for by the patient. In Sweden the patient pays the first 5s. of the prescription's costs and 50% of the amount above this.

There are intriguing "extras" that have to be paid for by the patients. In Denmark all requests for visits have to be in by 9 a.m. For later requests the doctor claims a fee, which is doubled in the case of a night call or a week-end request. Requests for repeat prescriptions on the 'phone are charged about 3s. in Sweden.

The Medical Profession

There are approximately 7,000 doctors in Holland (1 for 1,500 of the population), 5,000 doctors in Denmark (1 for 900), and 6,500 in Sweden (1 per 1,200). (In Britain our rate is around 1 per 900.)

In Sweden there is an apparent shortage of doctors, a shortage that is serious outside the large towns. In the remote areas one district doctor may have to look after more than 10,000 people.

The profession is well organized in each country with active and powerful medico-political medical associations and other allied societies.

General Practice

Before I went I was not certain whether "general practice" as we know it existed on the Continent, and if it did how it compared with our own.

In Holland and Denmark it certainly exists. The doctor works independently from his own premises with the minimum of interference from anyone. He arranges his own routine of work and he has the closest relations with his patients. In Denmark, where there are no out-patient departments, the doctor is encouraged to investigate his patients very fully and to seek private consultant advice (for which the insurance scheme pays) before the patient is admitted to hospital.

In Sweden there is *no* general practice in our sense, and the Swedes acknowledge the fact. The Swedish system of medical care is based on the principles of free choice of any doctor by the patient at any time and on free access by the public to hospitals. The patient can be under the care of more than one doctor at the same time.

*The last of three articles on general practice in other countries. The others were published in the last two issues of the *Journal*.

In the large towns in Sweden most doctors are "specialists." To be a "specialist" it is necessary to do approximately five years' postgraduate work in a hospital and then one is automatically graded a specialist by the Royal Medical Board. The vast majority of these specialists have no access to any beds in hospitals.

Outside the large towns there is a great shortage of doctors in Sweden. Medical care is provided by district doctors who are responsible for between 6,000 and 10,000 patients. These district doctors are a mixture of an M.O.H. and a G.P. They organize all local preventive care and are also general practitioners. They are well paid, receiving a salary of £2,000 for being an M.O.H., and also collect fees for all G.P. work. Their premises are provided for them by the local communities, and they have nurses to work with, and it is only by using these nurses a great deal that the doctors can cope with the work.

Entry into Practice

Entry into general practice in Holland and Denmark is by buying and selling goodwill (in Copenhagen G.P.s are appointed to vacancies in order to control their numbers). The cost of a practice is around one and a half times its annual income. In Sweden there is no sale of goodwill. Specialists merely "put out their plates" and district doctors are appointed by the Crown.

There is no system of training for general practice, or any organized postgraduate education of practitioners. A doctor can buy his practice in Holland and Denmark as soon as he qualifies. There are no "assistants," trainee or otherwise, by means of which the young doctor can serve an apprenticeship. No teaching of general practice is given to medical students during their long 6–8 years' medical training.

Doctors work alone, single-handed, and there are no partnerships or group practices.

Premises

In Holland and Denmark the general practitioners work from their own homes in premises that have to be improvised for the job. Their problems are identical with our own in Britain. Waiting-rooms tend to be small, and some patients sometimes have to wait up to three hours. The consulting-rooms were of the usual type and there were no special examination rooms. In Sweden, where the premises are built and provided by the local committees, the facilities are lavish and extravagant. Waiting-rooms are still small, but there are two or even three examination rooms, a minor operating theatre, and a small *x*-ray unit, an E.C.G. machine, and a laboratory. There were also rooms for nurses and secretaries. The equipment used and the care provided was very similar to that in Britain. In Sweden the *x*-ray and E.C.G. machines were used only occasionally.

Secretary-nurses are employed by most of the doctors (6 out of 10 of the doctors visited had one). They are specially trained for their job and carry out bookkeeping, records, diagnostic tests (they did all the investigations), dressings, and injections. In Sweden they are employed by the local authorities.

The Doctor's Day

Basically the day of the G.P. in Europe is the same as in Britain. He sees patients in his consulting-rooms and he also visits patients in their homes. The sessions, however, are arranged differently. There is always a morning consulting session that tends to start early, usually about 8 a.m. (one Dutch rural practitioner starts seeing patients at 7.15 a.m.). This session goes on for anything from 2–4 hours, although the official period on the plate is 8–9 a.m. Patients wait their turn. There are no appointment systems. In many practices this is the only consulting session of the day, but in some practices in Holland and Denmark there are one or two afternoon and an occasional evening session during the week. Evening consultations are the exception. Visits are done after the morning sessions, but they tend to be much fewer than in Britain. The doctor usually finishes his work by 5 or 6 p.m., and in the large towns in Denmark and Sweden he is then free because the G.P.s do no night calls.

Night calls and week-end work in Copenhagen are carried out by an emergency call scheme that is approved by the profession and by the insurance scheme. The doctors who work in it are either young G.P.s or in junior hospital appointments. The scheme is operated with the approval of the Danish Medical Association, and the doctors are paid by the insurance authorities at about £1 per visit (the patient contributes about 5s. of this). This is considered as a good training for general practice.

In Stockholm a 24-hour emergency service is operated by the local authorities. Because there is no recognized general practice and no patient has his or her "own doctor," teams of young doctors in radio-cars are employed to deal with urgent requests for visits. There are 3–4 of these doctors for each of four daily shifts, and on an average each doctor deals with 15–20 visits per shift. The doctor is paid (about £1 per visit) by the patient, who then claims 75% back from the insurance scheme.

Outside the large towns there are no such schemes and it seems that night calls are much less frequent, on an average about one call every three or four weeks.

Volume of Work

How hard do our colleagues abroad work? When I visited these doctors I took particular note of the number of patients seen, and the Table shows the average figures.

Country	Size of Practice	Daily		Annual Attendance Rate per Patient	Annual Gross Income
		Consults.	Visits		
Holland ..	3,750	35	15	4·3	£5,000
Denmark ..	3,500	40	10	4·3	£4,500
Sweden ..	8,000	30	5	1·1	£6,000
Britain ..	3,000	35	10	4·4	£3,000

Although these are rough estimates they do show certain trends.

(1) The average size of the lists of the doctors whom I visited were much higher than those in Britain, yet the doctors were coping very easily—even in Sweden. In Sweden, as we shall see, much of the doctor's work was done by his nurses.

(2) The total numbers of visits and consultations were similar even though the numbers at risk were different.

(3) As a sign of local habits, and as an index of how hard the doctor worked, it is seen that in Holland and

Denmark the patients saw their doctor just over four times a year each, but in Sweden the rates were much less.

(4) The gross incomes of the doctors are a very rough estimate calculated from capitation fees and other sources of income.

Diagnostic Facilities

It must be accepted as a fact that the modern doctor cannot practise a high standard of medical care without access to diagnostic facilities. How do our colleagues in Europe fare, bearing in mind that not all G.P.s in Britain have this access ?

In Holland, although there is theoretical access to hospital diagnostic departments, this does not exist in practice because the patient or G.P. has to pay for it. The G.P. does simple blood estimations in his practice and refers others who require more detailed pathological investigations and *x*-rays to a specialist in hospital, who then investigates them and takes over their supervision.

In Denmark a much more enlightened view exists. The G.P. is actively encouraged to investigate his own patients. He is given access to all diagnostic aids. This encouragement goes so far that there is no system of out-patient consultations in hospitals, and no patient is admitted to hospital until the G.P. has fully investigated his patient and obtained a consultant's opinion. This opinion is obtained at a private consultation for which the insurance scheme pays. *X*-ray investigations are carried out either at the hospital or by private radiologists (again, the sick clubs pay). Pathological investigations are done in hospitals or, in Copenhagen, at a special G.P.s' laboratory.

G.P.s' Laboratory

This G.P.s' laboratory in Copenhagen requires special comment. It was first established in 1922 to maintain the doctor's independence, and has now grown to a building covering eight floors and a staff of over 60 technicians. It is owned by a G.P.s' organization and it is financed by charging a scale of fees for each investigation. These fees are paid by the insurance scheme. Any doctor can refer cases for investigation. In 1959, 300 doctors referred 75,000 patients for 275,000 investigations. On an average, each G.P. in Copenhagen refers between 200 and 300 of his patients to the laboratory each year.

The investigations carried out are very comprehensive, and as well as any pathological investigations there are facilities for electrocardiograms (12 machines), electro-encephalograms (3 machines), B.M.R. (six rooms for this test), audiometry, serum analyses, tonometry, and electromyography. The results are sent direct to the doctor.

Figures for September, 1960, showed that 6,573 were seen and 24,322 investigations carried out. Amongst these 40% were for routine blood tests, 8% serum analyses, 20% urine tests, 2% gastric analyses, 5% examination of faeces, 6% E.C.G., 3% B.M.R., and 2% E.E.G.

A laboratory such as this works very well in Copenhagen, a town of over 1 million inhabitants, but obviously it would be more difficult economically to organize such a laboratory in a smaller place.

In Sweden the district doctors have laboratories and small *x*-ray machines provided for them, and their nurses are trained to carry out simple tests. Anything more elaborate has to be referred to hospital.

Hospital Services

There are more hospital beds available on the Continent (approximately 15 per 1,000) than in Britain (12 per 1,000), and waiting-lists are shorter. The relations between the G.P. and the hospital vary. There are no G.P. beds and the G.P. has no appointment in the hospital service.

Outside the large cities admission to hospital is arranged directly between the G.P. and the hospital staff, as in Britain. In the larger towns of Holland and Denmark there are certain departments that control and supervise all hospital admissions in that particular town. This saves the individual hospitals much work.

In Amsterdam, for example, before a patient is placed on the waiting-list, or admitted as an emergency, a "control doctor" employed by the local authority has to see the patient to decide whether admission is necessary.

In Copenhagen there is a similar system. The admission has to be vetted by a doctor called the "visitator."

In Sweden admissions are arranged by the patient approaching the hospital directly and no introduction from an outside doctor is necessary.

Out-patient Care

The arrangements for out-patient care are quite different. The nearest approach to our own system is in Holland, where specialists on the hospital staff see patients referred there by the G.P.s, but these specialists are all paid a fee for this either by the insurance scheme or by the patient (if they are not covered).

In Denmark there are no out-patient departments as we know them. If a G.P. wants a specialist's opinion he refers the patient direct to the specialist's own consulting-rooms and an agreed fee is paid by the insurance scheme. The ideas behind this are admirable: (*a*) the hospitals do not take over long-term care of the patient; (*b*) hospitals do not carry out any routine care; (*c*) the patient is seen by the specialist himself; and (*d*) better personal contact and relations develop between G.P. and specialist.

In Sweden the system is quite the opposite. There are large policlinics at hospitals which provide out-patient and G.P. care. Patients can go direct to the hospital without any doctor's letter, etc. They can select the specialist they want to see. The policlinic carries out the whole care and supervision of the illness for which the patient attends.

This system has overloaded the hospitals. On a visit to a very large (1,700 beds) hospital in the E.N.T. policlinic I saw three specialists seeing 200 patients during a morning session. At the same hospital I saw one surgeon working alone seeing 100 patients in a morning. Many of these (more than 70%) cases were minor conditions such as sprains, sore throats, and even wax in the ears. It seemed that there was a need for a G.P. to help.

Preventive Services

The countries visited have the lowest infant mortality rates in the world, and I was interested to see whether this could be the result of any special system of preventive care that they were using.

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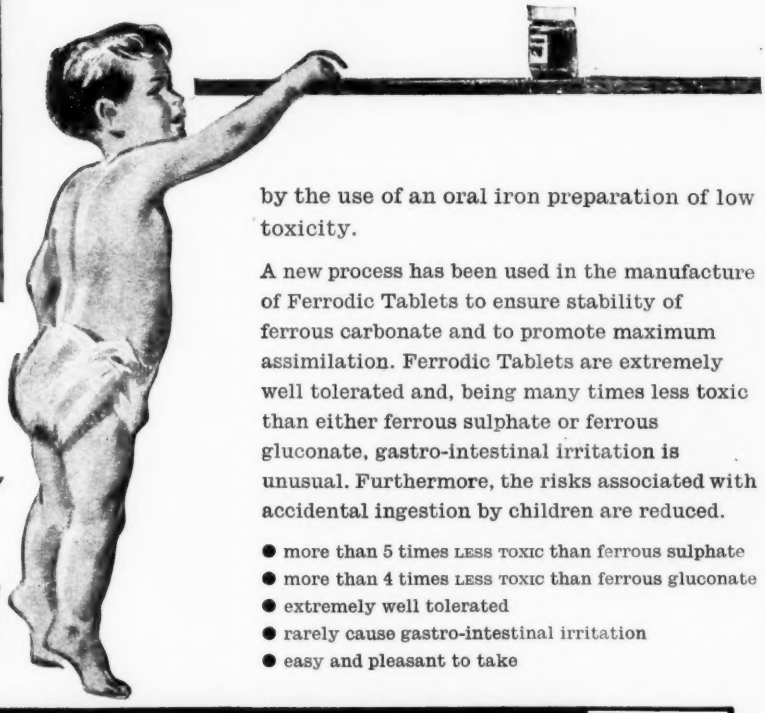

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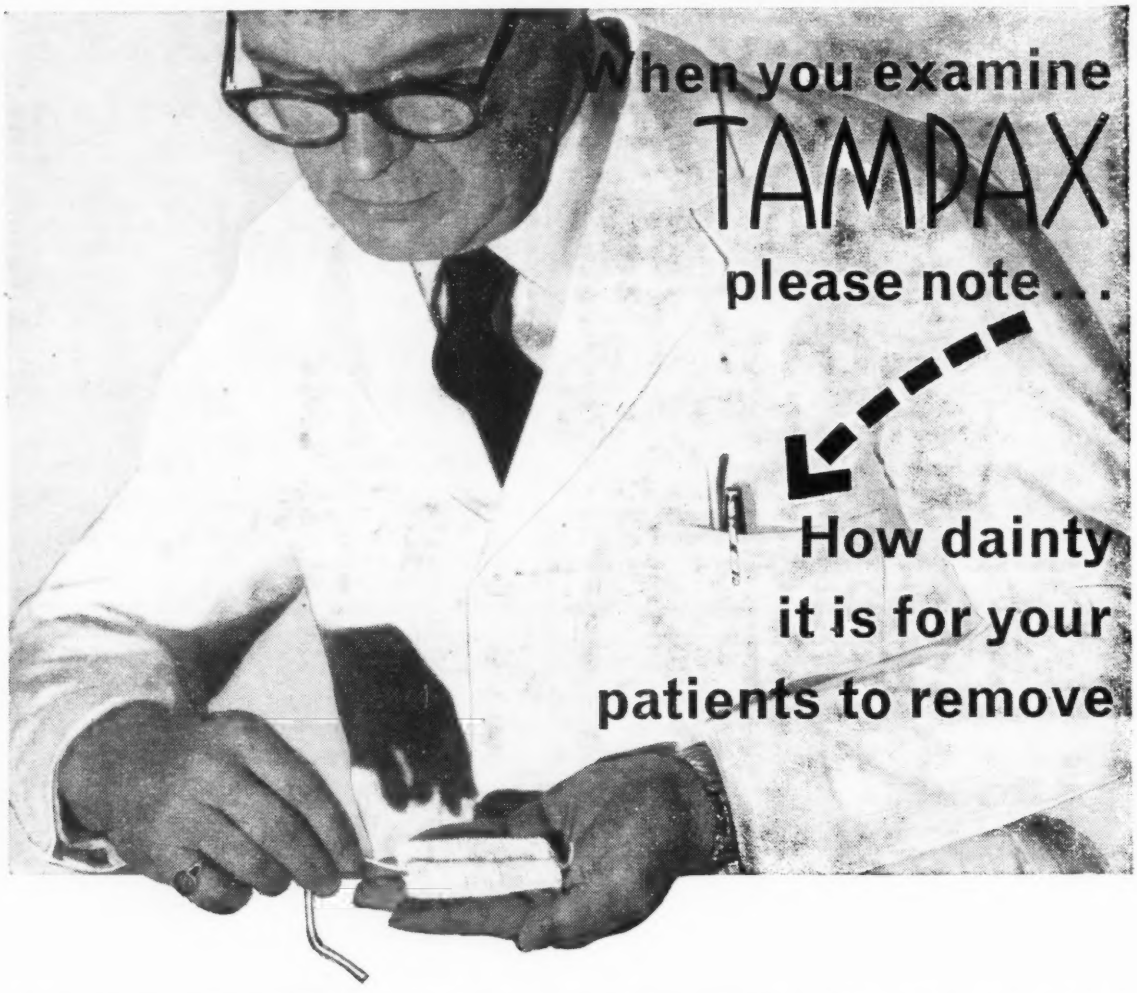

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It was clear, however, that the good health of the people did not depend on any one system, because different methods were used in the three countries.

In Holland infant welfare and maternity care were carried out at clinics by clinic doctors in the cities and by G.P.s on their own patients in the smaller towns and villages.

In Denmark the G.P. carried out the preventive medical care. He was responsible for seeing and examining all infants in his practice at nine set periods from birth till school. For this he received a fee of 15s. for each examination. He also saw his expectant mothers in co-operation with the midwife.

In Sweden there is yet a very different system. All infants are seen at clinics. These clinics are in three grades. Grade I is a clinic staffed by a paediatrician (a paediatrician in Sweden is not one with a hospital appointment but one who sees only children)—there are 161 of these; grade II clinics are run by district doctors with a specially trained nurse—there are 53 of these; grade III are those run by a district doctor with no specially trained nurse—there are 562 of these. By this system 95% of children are seen and supervised in their first year of life, 85% in the second year, and 30% between two and seven years. More than 50% of children are seen by a paediatrician at some time in their first year. The type of maternity care does not seem to be related to the low infant mortality rate. In Holland only 40% of women are delivered in hospitals. In Denmark the figure is about 70%, and in Sweden 99%. Yet the results are good in all.

Clinical Problems

The main clinical problems encountered in all these countries were more social than medical and were related to the care of elderly, the chronic sick, and the mentally ill.

A successful experiment in Sweden in keeping these patients out of hospital has been to pay relatives up to £4 a week to look after these patients at home, and also to provide a wide range of home-helps and rehabilitation units at hospitals.

Alcoholism is a much greater problem than here. For instance, special clinics for alcoholics treat 5,000 patients (nearly 8 per 1,000 of the adult population) in Stockholm each year.

The abortion clinics in Sweden have achieved a good deal of publicity, and in 1959 there were 1,300 legal abortions carried out in Stockholm compared with 10,000 births.

Use of Nurses

A striking impression on the visitor to Sweden is the way in which nurses are given much greater responsibilities.

Without the help of nurses the district doctors caring for up to 10,000 patients could not cope. As it is each doctor has between three and five nurses working with him. These nurses have their own offices in their homes as well as rooms in the doctor's premises, and they are well paid—up to £1,000 a year. They carry out almost all the routine preventive care, visit infants and mothers, and carry out inoculations, etc. They also visit patients on behalf of the doctor and treat many cases on their own.

Anaesthetics in hospitals in Sweden are given by trained nurses and this includes intubation and muscle relaxants. There are no radiographers in Sweden. Nurses specialize in this branch and they also take up physiotherapy.

Discussion

What can we learn from all this, and in what ways can we be of help to our colleagues abroad?

In the field of general practice we can teach our colleagues much about the training of future practitioners and postgraduate education of G.P.s. The strides that have been made here in encouraging research in general practice have no parallel abroad except in Holland, where the young College of General Practitioners is beginning to organize field studies. The absence of a College of General Practitioners in Denmark and Sweden was evident in a lack of academic stimuli.

The development of group practice has aroused much interest on the Continent, and in Stockholm there are plans for building a series of medical centres in an attempt to halt the flow of patients to hospitals.

There are many good things that have been developed abroad that we should examine to see if they could be introduced here.

The example of co-operation between nurses and district doctors in Sweden has shown what can be done. By means of this co-operation the team is able to care most efficiently for up to 10,000 patients. What couldn't *we* do if our health visitors and district nurses worked *with* our family doctors?

In the field of preventive care we can learn from Denmark and Sweden how the G.P. is able to undertake the routine care of infants. We might see whether an experiment on these lines could be carried out in an area here.

The successful ways in which G.P.s are encouraged to investigate their own cases is most refreshing, and the G.P.s' laboratory in Copenhagen should be visited by some of our planners.

Two opposite lessons on the use of out-patient departments. In Denmark all goes well without any out-patient services (apart from follow-up clinics), whilst in Sweden much unnecessary work is done at the policlinics.

Of interest to general practitioners are the absence of any evening consulting sessions, penalties for patients with late requests for visits, the universal use of the emergency-call systems in large towns for night calls, the sale of goodwill, and the training of nurse-secretaries for general practice.

In the social field, could we not encourage relatives to care for their elderly relatives by paying a money grant, as in Sweden?

Conclusions

The great stimulus given by visiting and talking to fellow doctors abroad cannot adequately be described. My sincere thanks are due to all who have made this visit possible—especially to the World Health Organization, who awarded me the Fellowship.

I left England in a mood of apprehension and inferiority, but I returned stimulated in the knowledge that our N.H.S. is in no way lagging behind others. We may have old buildings, but we seem to have ideas that are in many ways ahead of others.

HOSPITAL BUILDING PROGRAMME

The Ministry of Health has issued the following details of the 29 major building schemes announced by the Minister on January 25 (see p. 346) as being scheduled to start by 1964–5. The list comprises six new hospitals, one of which is for mentally subnormal patients, and schemes for the development or modernization of 23 existing hospitals.

New Hospitals

Basildon (North-East Metropolitan Region)

To be built on a site already reserved in the New Town and estimated to cost over £2m. The hospital will be planned to meet the special needs of the New Town, and will have 345 beds, including a self-contained psychiatric unit of 30 beds and a maternity department of 63 beds. A bigger maternity department than usual has been planned because of the higher-than-average birth rate in Basildon. The out-patient department will provide sessions in all the major specialties. Plans provide for a helicopter landing site.

Exeter (South-Western Region)

First phase of a new hospital to be built at Wonford, on a site adjoining the psychiatric hospital. This phase will comprise a self-contained unit which will permit some reorganization in other hospitals and will also provide extra acute beds which are needed. The main part of this phase, which is likely to cost £2–£2½m., will probably be preceded by a combined department of pathology and Public Health Laboratory.

Fulbourn (East Anglian Region)

To relieve the growing waiting-list and increasing pressure on beds for severely subnormal patients, it is proposed to build a hospital of 320 beds on land adjacent to the present psychiatric hospital at Fulbourn. Estimated cost about £1m.

Stevenage (North-West Metropolitan Region)

This will serve North Hertfordshire and have 400 beds. It will be known as the Lister, and when completed the staff and work in the acute specialties will be transferred from the existing Lister Hospital, Hitchin, where a geriatric and chronic sick unit will be retained. Subject to confirmation of a Compulsory Purchase Order at present before the Minister of Housing and Local Government, it is proposed to build the hospital on a site at Corey's Mill, Stevenage. It is not intended to phase building, but there may be additions later. Cost is expected to be between £2m. and £3m.

Abergavenny (Welsh Region)

First stage of 400-bed hospital will comprise 192 beds with operating theatres and other departments, including *x*-ray, pathology, and out-patient.

Pontypridd (Welsh Region)

Long-stay geriatric hospital to replace Graig Hospital, and provide 128 beds. At the same time new geriatric and acute psychiatric units, each of 30–40 beds, will be established at the nearby Church Village Hospital as part of a complementary scheme.

Development and Modernization

Blackpool : Victoria Hospital

New maternity unit of 100 beds with antenatal clinic and premature baby unit. There will also be a nurses' teaching unit and accommodation for nursing staff.

Brighton : Royal Sussex County Hospital

Provision of an accident centre, casualty department, and orthopaedic unit. The intention is that the Royal Sussex should become the accident centre for the area.

Bristol : Homoeopathic Hospital

Planned to build a radiotherapy centre at this hospital. There will be six treatment rooms with full range of modern equipment, including a linear accelerator. There will be some 90 beds provided for acute cases and those brought from long distances.

Burton-on-Trent : General Hospital

New out-patient and casualty block at the General Hospital will provide comprehensive services for the area and supersede the present makeshift arrangements at this and other hospitals in the group.

Canterbury : Kent and Canterbury Hospital

Scheme for accident, casualty, and out-patient departments, with physiotherapy, *x*-ray, and pathological services, and a service block containing power station, stores, kitchen, and staff dining-rooms. This will provide an accident centre for the area, as part of a scheme for developing the hospital.

Clatterbridge Hospital

The hospital is being developed as the major radiotherapy centre for the Liverpool Region. Phase 1 provided a linear accelerator, wards, and ancillary departments ; phase 2, now in progress, consists of further wards and ancillary departments. The board are themselves financing a further stage to provide accommodation for a second linear accelerator. The final stage now announced will provide two general purpose wards of 28 beds each, day-rooms, isotype wards, out-patient department, and a teaching unit, among other accommodation and services.

Hammersmith : Hammersmith and St. Mark's Hospitals

New multi-story central block as proposed. This will be the first stage of a development plan to increase the present 684 beds to 800 or more. It is hoped to place in the new block medical and paediatric wards, laboratories, kitchens, and administrative departments. This hospital is the only general postgraduate teaching hospital in the United Kingdom.

High Wycombe : High Wycombe Memorial Hospital

Planning is well advanced on the first phase already approved, which includes a ward block of 240 beds, operating theatres, laboratory, etc. The next phase now selected will complete the immediate development of the hospital by providing casualty, physiotherapy, *x*-ray, and out-patient departments.

Huddersfield : St. Luke's Hospital

As part of the reorganization of the city's hospital services, it is proposed to establish psychiatric and geriatric units at this hospital. The psychiatric unit will have 100 beds and an acute geriatric 64. Other beds will be provided for longer-stay geriatric patients. Ancillary services will include physiotherapy and occupational therapy departments.

Liverpool : Fazakerley Hospital

It is proposed to provide a unit for medium-stay psychiatric patients—those needing care for up to two years—which can be associated with the short-stay psychiatric unit to be provided as part of the general hospital development at Fazakerley. The unit will have about 190 beds.

Manchester : Wythenshawe Hospital

The first phase, for which sketch plans have been completed, consists in the main of a maternity unit ; the second phase will virtually mean the completion of the hospital by providing 316 beds, together with children's unit, operating theatres, and other departments such as casualty, *x*-ray, physiotherapy, and rehabilitation, as well as accommodation for medical, nursing, and domestic staff.

Newcastle : Royal Victoria Infirmary

Modernization of clinical services will include a new operating-theatre block, ward block, department of bacteriology, out-patients polyclinic, and maternity unit.

Nuneaton : George Eliot Hospital

To meet the urgent need for more maternity beds in the Nuneaton and Hinckley areas, it is proposed to build a 100-bed unit, and provide 18 cots for babies needing special care.

Portsmouth

First stage of a scheme for the comprehensive and complementary development and improvement of the general hospital services in Portsmouth. Details and cost now to be worked out.

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1 The Medical Officer, No. 2290 14th June, 1952

2 British Medical Journal, Vol. i, pp 1453/1455, 22nd June 1957

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Preston: Sharoe Green Hospital

This will be the second phase and in the main will consist of another 90 beds in a three-story block. The first phase, consisting of the first 90 beds, operating theatres, etc., has reached the sketch-plan stage.

Prudhoe and Monkton Hospital

Phases 1 and 2 complete; phase 3 due to be completed in mid-1962. Phase 4, which has now been approved, will provide 100 more beds for children in four villas and other buildings.

Reading: Royal Berkshire Hospital

The second phase of redevelopment to follow the new ophthalmic department will be an "industrial zone" which will include boiler-house, workshops, and maintenance depots.

Sheffield: Aughton Court Hospital, Aston; Grenoside Hospital; Thundercliffe Grange, Kimberworth; and Whittington Hall, Chesterfield

All these are hospitals for subnormal patients. It is proposed to provide 200 new beds with associated services at Grenoside; 280 more at Aughton Court; and 80 extra at Thundercliffe Grange. There is a large-scale plan for the development of Whittington Hall by erecting villa blocks for 460 patients. There will also be a new occupational therapy unit, and other services, such as engineering, will be improved. When the scheme is completed the existing Hall, which now has 318 patients, will be used for staff accommodation, training school, and some treatment services.

Shrewsbury: Copthorne Hospital

A new maternity unit estimated to cost about £500,000.

Tilbury: Orsett Branch of Tilbury and Riverside Hospital

Major development is planned to convert this branch into a modern general hospital. Work on the first phase, consisting mainly of a new 60-bed maternity block, operating-theatre suite, and other major services, is expected to start this year. The second phase now selected will continue this development and provide a new ward-block of 203 beds. as well as a 28-bed ward as an annexe to another block, and accommodation for doctors and nurses.

BUILDING NOTE NO. 1

Following the Minister's announcement (January 21, p. 221) that hospital authorities are to prepare a ten-year building programme, the Ministry of Health has issued the first of a series of *Building Notes** whose purpose is to help hospital authorities plan their programmes.

The main part of *Note No. 1* is concerned with the preparation of a building programme. The first stage, states the *Note*, is the assessment of existing resources, and boards are advised to prepare and maintain up-to-date records for all their hospitals on the physical state of the buildings, the service provided in terms of what is needed, and the availability of land for future development. Then the medical needs of the area must be more precisely determined by broad *ad hoc* survey. The first thing to find out is the number of beds required. Other factors which should be taken into account are (1) the extent to which physical assets might be improved by better staffing, (2) the extent to which better diagnostic and treatment services might reduce the demand for beds, (3) the effect of increasing out-patient provision, (4) the nature and extent of local-authority domiciliary and welfare services, and (5) local variations in morbidity which might affect the demand for beds.

**Building Note No. 1. Buildings for the Hospital Service*, 1961. H.M.S.O., London. Price 1s. 6d. net.

Relation of Beds to Population

The *Note* then provides some general guidance on the numbers of beds needed for different purposes. For "acute beds," a figure of more than three per 1,000 population would be unusual (excluding maternity and general-practitioner beds). Maternity beds should be related to estimated births, not population. A cautious and qualified estimate is given for "chronic sick beds," a figure of 1.2 beds per 1,000 being quoted. The present changes in the field of mental health are recognized as creating difficulties in making long-term estimates for psychiatric beds. There is a prospect, states the *Note*, of a number of mentally subnormal patients moving from hospital to local-authority care, though there is also a real unsatisfied demand for beds for cases causing hardship in the home. So far as mental illness is concerned, the immediate prospects of any significant switch from hospitals to the local authorities is not so great. Some developments, however, suggest that considerably fewer beds will be needed in the future. Teaching hospitals are considered separately.

Flexibility in Planning

In the section dealing with the compilation of the programme, the point is made that planning must be flexible enough to meet the needs of new medical techniques and treatments of the future, and not a rigid allocation between specialties and the sexes. There are likely to be an increasing demand for some forms of pathological investigation (biochemistry is mentioned), rapid expansion of out-patient and accident services, and increasing use of techniques such as electroencephalography. Other possible changes are, perhaps, grouping of in-patients according to their nursing needs, a greater use of "hostel" beds for those able to fend for themselves, and provision for day-patients.

The *Note* concludes with sections on the formulation of a "schedule of accommodation" and on "design in use."

OSTEOARTHRITIS: DIAGNOSIS AND TREATMENT

B.M.A. LECTURE-DISCUSSION

On January 19 at B.M.A. House Professor J. H. KELLGREN, director of the Rheumatism Research Centre at Manchester University, lectured and instituted a discussion on the subject "The Diagnosis and Treatment of Osteoarthritis." This was one of the recently inaugurated series of B.M.A. lecture-discussions. Dr. W. S. C. COPEMAN was in the chair.

Professor KELLGREN started by defining osteoarthritis in anatomical terms as a softening, fibrillation, and eventual disintegration of articular cartilage, resulting in joint-narrowing. This was followed by eburnation of the subchondral bone and eventually by osteophytosis. Osteoarthrosis, however, was probably a better descriptive name, since there was little or no synovial thickening or inflammatory infiltration in the uncomplicated condition. He illustrated how each of these pathological features could be detected on *x*-ray films.

From the Leigh Survey he was able to demonstrate the incidence of osteoarthrosis in different joints in a 55- to 64-year-old population sample. Thus, for example, whereas in females 65% of the sample showed changes in their distal interphalangeal joints, in males the corresponding figure was only 40%. Conversely, osteoarthrosis of the wrists was extremely rare in females. It was very striking that a high proportion of the population who exhibited these changes denied ever having had symptoms, and Professor Kellgren pointed out that in clinical practice one saw in effect

a highly selected part of the population in whom pain was the sole criterion for seeking advice. It was well known that racial, occupational, and psycho-social factors all played a part in determining the complaint "threshold" of different groups, but Professor Kellgren also postulated a varying *individual* complaint-threshold, depending on such factors as intercurrent diseases, a general feeling of well-being, and various other ill-understood psychiatric factors, especially those associated with a depression.

Generalized Arthritis

It was now customary to divide inflammatory polyarthritis into many different subgroups. The lecturer felt that the time was fast approaching when the same subdivision should be made in the case of osteoarthrosis. For example, one could make a start by subdividing generalized osteoarthritis, so commonly seen in menopausal women, from the mono-articular form which usually resulted from some inherited or acquired mechanical defect, trauma, or an occupational strain. He had made a close study of the former group, and demonstrated the characteristic pattern of joint involvement in that condition. The absence of an inflammatory component was well illustrated by a study of the fluid which could be aspirated from Heberden's nodes. This contained no protein or other inflammatory exudate; indeed, it seemed to consist almost entirely of hyaluronic acid. If one artificially caused vascular congestion, the pain in these Heberden's nodes would be considerably increased. However, if one aspirated the fluid before doing this, there was little or no increase in pain. At a later stage the cysts became ossified, and this usually coincided with a diminution in the pain. There was undoubtedly a hereditary element in this type of generalized arthritis, and there might also be a dietary factor. Thus in susceptible strains of experimental animals one could increase the incidence of osteoarthrosis by giving a high-fat diet. Also, it had been established that osteoarthrosis was correlated with obesity in males and with a raised blood cholesterol in females.

The differential diagnosis of this condition from rheumatoid arthritis depended on the absence of morning stiffness and the fact that osteoarthritic joints were usually more painful after use, whereas in many cases rheumatoid joints tended to improve as the day progressed. There was an absence of true synovial thickening in osteoarthrosis, and also the pattern of the involved joints was usually very different. Thus it was rare for the wrists or ankles to be involved in the degenerative condition. Finally, the absence of a constitutional illness and a normal sedimentation rate could usually be relied upon to differentiate the two conditions. Professor Kellgren pointed out that, whereas in his original series he had not regarded a raised sedimentation rate as being incompatible with osteoarthrosis, later experience had proved that patients having a sedimentation rate above 20 mm. were, in most cases, in the prodromal stages of a systemic form of arthritis. He considered, however, that, as both conditions were so common, a double diagnosis must be justified in many instances.

Mono-articular Arthritis

In discussing the mono-articular form of osteoarthrosis, he suggested that the pain mechanism was completely different and not due to an accumulation of hyaluronic acid. In many cases, the pain seemed to arise from a sprain of surrounding ligaments and tendons, resulting from the mechanical defect in the joint. This tended to occur whenever the joint was used excessively or awkwardly, and the fundamental basis of treatment must be to teach the patient to live within the reserve indicated by his pain. Eventually, osteophytosis would occur and this often tended mechanically to limit excursion of the joint and therefore to reduce the symptoms. Prophylactic measures included dealing with any deformity before it became too severe and trying to reduce traumatic and occupational factors which might irritate the joint.

Apart from rest, Professor Kellgren felt that one of the most effective forms of treatment was to identify by accurate examination exactly which spot in the surrounding ligaments was responsible for the pain and to infiltrate such areas with a mixture of a local anaesthetic and hydrocortisone. The former was extremely important, as it was only by its use that one could be sure one had hit the correct spot. The technique of such injections was far more skilled than was generally believed. He was not, in general, in favour of intra-articular injections for osteoarthrosis because of the risks of sepsis, and he felt that accurately placed periarticular injections were of greater usefulness. Muscular redevelopment was a vital ancillary treatment. As regards drugs, he felt that sedatives were often more useful than analgesics in this type of case. Phenylbutazone had a limited usefulness, since most of these patients were elderly and this drug was not very suitable for elderly patients. Systemic steroid therapy had no place at all in this condition.

Discussion

In the subsequent discussion, Professor Kellgren dealt with the question of making a diagnosis of osteoarthrosis in the absence of *x*-ray changes; he felt in general that this was a risky and undesirable thing to do. When discussing arthroplasties, he pointed out that the essence of a good arthroplasty was that the resulting joint should have a low coefficient of friction. In answer to a question about the use of intra-articular injections as lubricants in "creaky" joints, he pointed out that even if desirable it was impracticable, since the injections would have to be repeated with great frequency. In any event, the joint fluid in osteoarthrosis was generally of a good quality—that is, of high viscosity and consisting of a highly polymerized hyaluronic acid. He did not feel that muscle relaxants had any place in treatment, since, although the stiffness might appear to come from the muscles, most of the symptoms arose from the joints and periarticular tissues, which could not be affected by such drugs. He felt that a study should be made of the correlation between coronary artery disease and osteoarthrosis. In his opinion manipulation had little part to play in the treatment of osteoarthrosis. Accurately placed injections were more scientific and, in general, more useful. If properly located, one or at the most two injections should be sufficient to deal with any exacerbation of symptoms.

Finally, when discussing the operation of osteotomy of the femur as a treatment for arthritis of the hip-joint, he pointed out that any surgical intervention of this nature was apt to speed up the metabolic turnover of the joint surfaces. These were normally very slow, and it seemed that degenerative processes often outstripped reparative ones. A stimulus such as that provided by surgical operation might result in a reversal of this destruction and an increase of repair and sclerosis of the joint surfaces.

The Ministry of Education has issued a revised version of its pamphlet *Safety Precautions in School*, which was first published in 1948. The pamphlet is intended not only as a guide to teachers but as an introduction to the problems of safety precautions for the students in teacher-training colleges. Daily precautions against fire, the safeguards necessary in the use of electricity and in workshops, and the special precautions needed in housecraft and needlework rooms are fully dealt with. The chapter dealing with the science laboratory has been brought up to date in view of the developments in science teaching. Swimming, boxing, fencing, wrestling, boating, and canoeing are among the games covered in the section on precautions in physical education. There is a special chapter on road safety. (H.M.S.O., price 3s. 6d. net.)

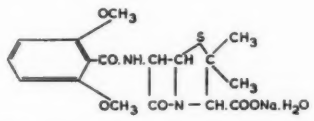
To-day's Drugs

With the help of expert contributors we publish below notes on a selection of drugs in current use.

Methicillin

"Celbenin" (BRL 1241) (Beecham).

Chemistry.—This is sodium 6-(2,6-dimethoxybenzamido) penicillanate monohydrate, and may be represented by the following structural formula:



Action.—This new antibiotic is derived from the penicillin nucleus, 6-amino-penicillanic acid.[1] The range of antibacterial activity is similar to that of benzylpenicillin with the notable addition of bactericidal action on staphylococci which are resistant to benzylpenicillin. It is bactericidal at concentrations only slightly higher than the minimum inhibitory concentrations and activity is not diminished in the presence of serum.[2] It is active against many strains of penicillinase-forming staphylococci, even when a very large inoculum is added. With therapeutic concentrations of 2.5 to 5 μg./ml. enzymic inactivation is insufficient to inhibit the antibacterial effect during the first 24 hours' incubation.[3]

Therapy.—Initial clinical studies with this compound show that it is highly effective against infections caused by penicillin-resistant staphylococci,[4–6] though methicillin-resistant strains have now been detected.[7] The drug has to be given by deep intramuscular injection. The dose for adults is 1 g. every four to six hours and for children 100 mg. per kg. body-weight daily in four equal six-hourly doses.

This drug is a most valuable addition to the existing antibiotics used for the treatment of resistant staphylococcal infections, especially those occurring in hospital practice. There should be clear-cut bacteriological indications for its use to avoid indiscriminate administration on a large scale.

Side-effects.—A test injection of methicillin was given intradermally to one adult volunteer known to be hypersensitive to benzylpenicillin. He had an identical hypersensitivity response to methicillin.[3] It would seem wise, therefore, not to administer this drug to patients who are known to be hypersensitive to benzylpenicillin. Otherwise the drug is remarkably free from pharmacological toxicity.

N.H.S. Basic Price.—Vial, 1 g., 13s.

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3 Stewart, G. T., Harrison, P. M., and Holt, R. J., *Brit. med. J.*, 1960, **2**, 694.
4 Douthwaite, A. H., and Trafford, J. A. P., ibid., 1960, **2**, 687.
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The French Council of Ministers has adopted additional measures to prevent the exploitation of prostitutes and to curb the spread of venereal disease. Penalties will be increased against procurers; against those who organize the export of prostitutes; and against hotels used by prostitutes. The Minister of Health stated that there were 130,000 prostitutes in France, of whom 30,000 were entered on health lists, and that a Government credit of over £140,000 would be raised to establish re-education centres (*The Times*, November 17).

Correspondence

Because of heavy pressure on our space, correspondents are asked to keep their letters short.

Oral Treatment of Diabetes

SIR,—While agreeing with most of the views expressed in your leading article on "Oral Treatment of Diabetes Mellitus" (January 21, p. 188), I feel that it contains two statements the wisdom and truth of which are open to doubt. The first is that insulin should be discontinued before attempting to substitute a sulphonylurea. It has been my practice in a large number of diabetics on insulin, but theoretically suitable for oral therapy, to halve the insulin and add chlorpropamide in a dose of 250 mg. This regime has proved most successful, and uncomplicated by hypoglycaemia or relapse into ketosis. I have, however, at present in the coma room of this department a case in which chlorpropamide was prescribed, and the patient advised to stop her insulin two days before her next out-patient attendance; she was admitted in pre-coma on the second day. In my opinion it is wiser to risk mild hypoglycaemia than severe ketosis.

The second statement to which I take greater exception is that the vascular, retinal, and renal complications of diabetes "are almost certainly due to metabolic disturbances resulting from inadequate insulin action, since they occur in patients with diabetes due to pancreatitis or haemochromatosis. . . ." It is generally accepted that such complications are quite exceptional in these conditions, and it is therefore more logical to regard their conspicuous absence in the great majority of patients with diabetes associated with such lesions of the pancreas as evidence against the view expressed than to quote their very rare occurrence in support of it.—I am, etc.,

Diabetic Department,
King's College Hospital,
London S.E.5.

WILFRID OAKLEY.

SIR,—I would not argue with the statement in the final paragraph of your leading article (January 21, p. 188), "Nevertheless, much the most serious consequence of diabetes to-day is the all-too-frequent development of vascular disease, retinopathy, and nephropathy." What is meant, however, by "really scrupulous diabetic control with insulin"? The diabetic can so frequently be controlled with a minimum of dietary instruction, combined with a sulphonylurea. The unstable diabetic, however, is notoriously difficult to control. A case was recently described to me in which the efforts to control the diabetes were so "scrupulous" that the man's life must have been a misery. Nevertheless, he died at the age of 40 with all the complications you list.

You omit, incidentally, to mention the complications of hypoglycaemia, the most serious of which is loss of consciousness, carrying with it all the danger of uncontrolled epilepsy. Insulin injections are, needless to say, the predominant cause of this dangerous condition.—I am, etc.,

Barton-on-Humber, Lincs. S. H. F. HOWARD.

Clinical Aspects of Cardiomyopathy

SIR,—Dr. J. F. Goodwin and his colleagues (January 14, p. 69) have made a valuable contribution to the problem of diagnosis of cardiomyopathy in its later stages. It is not clear, however, why they confine the

definition of cardiomyopathy to subacute and chronic forms and do not include the acute variety. The cause of "isolated myocarditis" shares the obscurity of many of the chronic cardiomyopathies, but it does present a fourth very striking clinical picture. Furthermore, such an acute onset may progress to the subacute or chronic cardiac failure described by the authors as Types I and II. Similar acute myocardial disease occasionally occurs in the course of many generalized infections. By excluding such acute myocardial disease the authors may be adding to the obscurity of the cardiomyopathies, as the chronic condition may often only be the sequel to the acute, and investigation of the cause is more likely to be fruitful the earlier it is undertaken.—I am, etc.,

Coventry and Warwickshire Hospital, Coventry IAN R. GRAY.

Surgery in Ulcerative Colitis

SIR,—The experience of myself and my associates at the Gordon Hospital with a very large series of patients who have undergone total colectomy and ileo-rectal anastomosis in the surgical treatment of ulcerative colitis is at complete variance with that of Professor J. C. Goligher (January 21, p. 151). Between March, 1952, and August, 1960, 162 patients with the diffuse disease were treated by methods I have described. Of these, eight died as the result of operation, a mortality rate of 5%. One who had had the disease for 17 years died of cancer developing in the rectal stump, and it was at least likely that the carcinomatous change was present though unrecognized at the time of operation. Three others have died subsequently, of causes in no way related to the procedure. Of the remaining 150, eight—or just over 5%—have been converted to a permanent ileostomy. 142 patients dealt with in this period thus retain their rectums, and, of these, 127—or 78% of the original total who were operated upon—are in first-class health, and, with the exception of temporary incidents of obstruction due to bands and the like occurring in a minority, have remained so during the period of follow-up. These figures do not tend to support Professor Goligher's contention that "the prospects of securing lasting success with this operation are quite precarious." Neither would the patients at any of our follow-up clinics, at which, as Professor Goligher knows well, he would be a very welcome visitor.

I have no doubt that the dissimilarity in our results is in part attributable to differences in operative technique, and one of great importance where he and I differ is as to whether the line of anastomosis should be defunctioned whilst it is healing, or not. I believe it should, but Professor Goligher thinks otherwise. Our barium enema studies have shown that even with the most meticulous suturing more than one in four of our anastomoses show sign of leakage even when protected by a defunctioning ileostomy. It is reasonable to suppose that a far higher proportion give way in part when within a day or so of their formation intestinal content pours over them. A leakage of this gives rise to chronic pelvic cellulitis, or to chronic abscess formation about the line of union with subsequent continuation of rectal discharge and bleeding, and failure of the operation. This is not supposition, as we have dealt with such occurrences. If Professor Goligher would follow the techniques we have learnt by bitter experience to be essential for success, then I am sure that his results would be a mirror of our own.

With regard to the fulminating case, the institution of an ileostomy alone I regard as a retrograde step. All such cases are treated in our clinic by total colectomy and the formation of a temporary ileostomy and proctostomy which are subsequently anastomosed. Of 26 fulminating cases, including many nigh moribund, four died, a mortality of approximately 15.5%. Pan-proctocolectomy should never be undertaken, but to leave the colon, often-times on the verge of perforation if not already perforated, is to my mind a dangerous procedure.

In conclusion, may I say that Professor Goligher's criticism of the ileo-rectal anastomosis was answered by myself in detail far greater than is possible here at last year's meeting of the Association of Surgeons? Unwisely I followed the rule of the Association that papers should not be read—a rule not observed by my very good friend from Leeds—for had the opposite been the case no doubt my full explanations of our differences would have appeared alongside his paper.—I am, etc.,

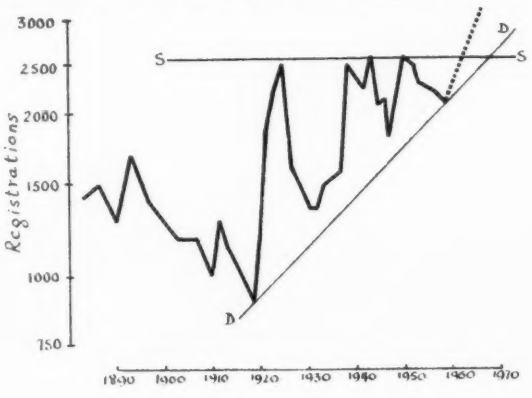
London W.1. S. O. AYLETT.

Deficit of Doctors

SIR,—Dr. J. R. Seale's letter on this subject (January 21, p. 203) lends itself to another demographic methodology, but one which leads to the same interpretation. The chart used to illustrate his remarks is here redrawn on the logarithmic scale commonly employed in these problems; the general contours are of course substantially unchanged. As such, it depicts a recognized type of supply-and-demand situation.

Medical registrations showed a falling trend between the end of the last century and the conclusion of the first world war; there was then a brisk resumption with an increase from 900 annually to 2,500. This peak rate of supply of new doctors fell to another "low" around 1930; demand then predominated again and pushed up to another "high" of 2,500–2,600 near the start of the second world war. The opening 1940's saw some reduction to another low point in the middle of the decade, when another reversal took registrations up again to the 2,600 level in 1950. Since then there has been another moderate drop; even an immediate increase in recruitment would not lead to recovery for some years owing to the time lag in the "throughput" of medical faculties. But if we accept Dr. Seale's ideas, we might reasonably expect to see another upward turn within 5–10 years.

It is evident that the three high points of reversal can be approximately connected by a horizontal line SS. Similarly, the three low points of reversal (a fourth may be expected if demand operates as hitherto) from an



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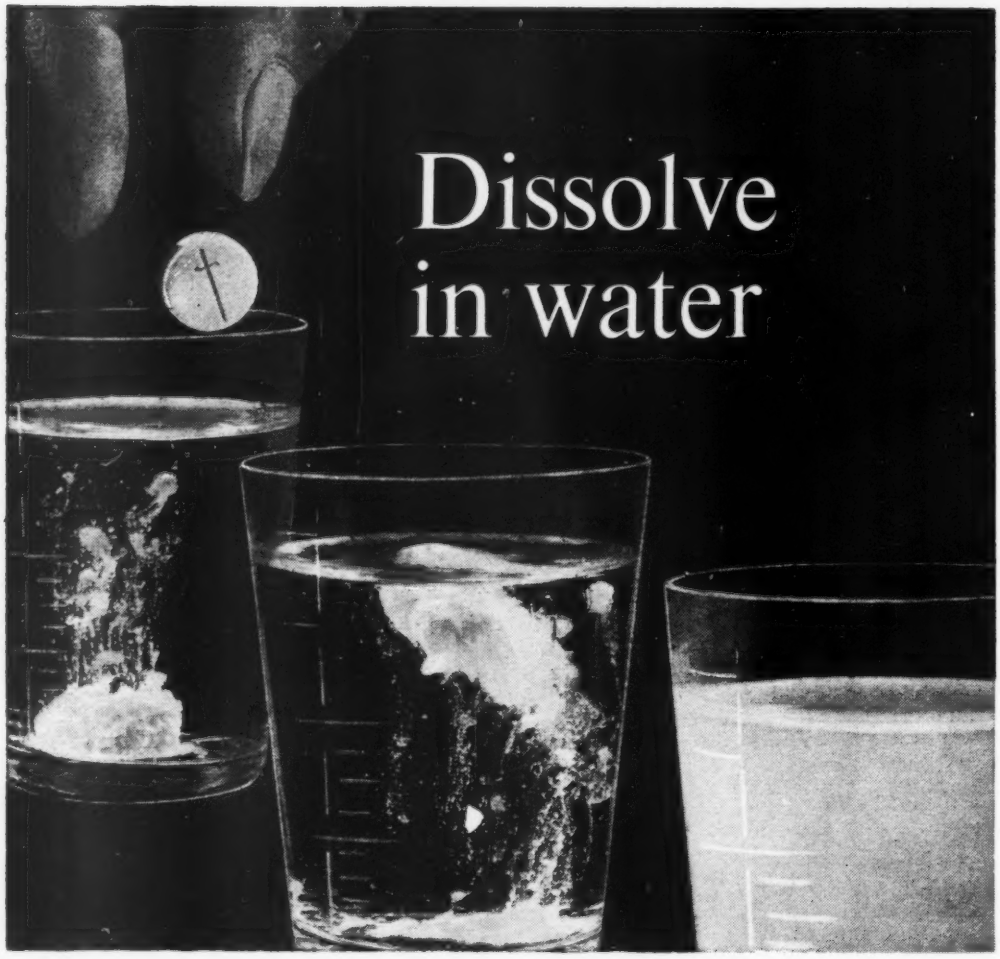

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upslanting line DD, as each reversal has been at a successively higher figure. The line SS is the *supply line* —i.e., it marks the level at which demand has brought out sufficient supply, and this in turn causes a slacking off in recruitment. The line DD is the *demand line*, indicating the level where the shortage of supply creates a consequent demand for more doctors.

This general formation of an ascending demand line meeting a horizontal supply line is well known in supply-and-demand theory. In this instance it is largely due to the facts that, first, the potential supply is limited or "constant" in so far as medical faculties cannot quickly alter their output; and, second, this relatively fixed supply eventually becomes incapable of filling a demand which gradually comes in at higher and higher levels. Eventually an unstable situation occurs where demand overtakes supply quite sharply. If the demand is in fact to continue getting higher, the chart may be extrapolated by the dotted prolongation; this indicates the expected result, no matter what "commodity" is under consideration. A marked disproportion could thus commence around 1970, with many unfilled vacancies. Dr. Seale's *ad hoc* reasoning therefore tends to be confirmed by a purely theoretical approach.—I am, etc.,

Barrow Hospital, Bristol. MAX VALENTINE.

SIR,—The pertinent letter from Dr. J. R. Seale (January 21, p. 203) should be read in conjunction with the advertisement for a consultant dermatologist in the same issue (p. 48 of the advertisements) from the Manchester Regional Board and Board of Governors of the United Manchester Hospitals. The advertisement asks for applicants for a post comprising three sessions at four hospitals in the teaching group and five sessions at four hospitals (including two with charge of beds) in the regional board area. In addition to these eight sessions at eight hospitals the successful candidate is expected "to spend an appropriate time in research" and "will be eligible for consideration for a part-time university appointment."

This post is presumably the senior dermatological appointment in Manchester, and the holder will be obliged to attend numerous committees at his hospitals in the teaching group, the regional board hospitals, and the university, as well as lecturing to nurses, medical students, and postgraduates. All this will be added to his heavy clinical responsibilities, and, as the post is part-time, he will probably wish to undertake some private practice. How can one man do justice to these commitments?

It is little wonder, if this is a typical example, that so many graduates complete their medical training with inadequate instruction in dermatology. If this is the Health Service answer to the imminent shortage of doctors, by asking one man to do the work of two or three, then the profession will become even less attractive to new recruits than it is at present.—I am, etc.,

Manchester 3. G. AUCKLAND.

SIR,—I have carefully read Dr. J. R. Seale's very illuminating letter (January 21, p. 203), which certainly draws attention to the likely situation which may exist in this country in the next decade or so as far as distribution of medical manpower is concerned. What would be of equal interest would be to know how the intake of doctors into the many medical and surgical and other specialties has varied in, say, the last ten years—e.g., how many doctors have taken up psychiatric work, obstetric and gynaecological work, public health administration, paediatric services, etc. It would then be apparent as to which branches were over- and under-staffed and what branches were offering the maximum attraction. Statistics along these lines would be extremely worthy of study and would afford a valuable guide as to future requirements.

As far as manpower in hospitals is concerned, having regard to vacancies in different grades which may prove difficult to fill, there is a good deal to be said for what one could term automatic promotion. Then, if a senior post were vacant for some time, a junior man who had given, say, ten years' continuous and satisfactory service to the hospital concerned could be offered promotion to the higher grade. This has happened in some cases, I am aware. This would reward the steady practical man who might not be so brilliant, theoretically speaking, as his colleagues, reflected by his non-possession of various higher degrees and diplomas. We seem to be passing through a phase where qualifications hypnotize appointing committees and where the other equally vital factors in candidates' applications for posts receive scant recognition. These include age, experience, and the personality of the applicant. As Kenneth Walker, the philosopher-surgeon, indicates in his book *A Doctor Digresses*, if he were ill it would be the doctor's personality far more than his qualifications which would count for most in the long run. Thus, in short, it should never be the case that a man's lack of academic brilliance should impede his hopes of reasonable promotion and happiness in his work.—I am, etc.,

Royal Earlswood Hospital, Redhill, Surrey. J. B. GURNEY SMITH.

REFERENCE

1 Walker, Kenneth, *A Doctor Digresses*, 1950. Cape, London.

Menstrual Red Eye

SIR,—An interesting eye condition was seen recently in a patient aged 35 as an incidental finding at gynaecological out-patients. This woman had a red, watery, and irritable left eye. On questioning she said that she had a symptomless red left eye the day before every period commenced since the onset of menstruation 20 years ago; it lasts for two days and then clears completely. Her complaint was of two series of irregular, but otherwise normal, periods in April–May and November–December, 1960, when they came fortnightly. The red eye appeared before both the regular and irregular periods, but had not cleared in the three weeks before this visit and had been irritable and watery for three days.

On ophthalmological examination she had a marked generalized conjunctival hyperaemia and early ciliary injection with associated epithelial oedema. A single fluorescein-staining corneal ulcer was seen peripherally surrounded by non-staining nebulae, presumably a sequela of the oedema. Several pin-point grey scars were seen more centrally, indicating previous healed nebulae. The eye was otherwise normal though a little soft on digital tonometry. Vision was 9/6 in the right eye and 12/6 in the left eye. The condition cleared with antibiotics and mydriatics. The right eye has never been affected.

As this condition does not seem to have been described before I wondered whether any of your readers had seen a similar case or could provide an explanation?—I am, etc.,

Guy's Hospital Medical School, London S.E.1. M. D. O'BRIEN, Dresser to Department of Obstetrics and Gynaecology.

"Premarin" as a Haemostatic Agent

SIR,—The article entitled "Premarin* as a Haemostatic Agent: Failure to Demonstrate Any Laboratory or Clinical Effect" by Dr. C. F. Borchgrevink and his associates (December 3, 1960, p. 1645) is so critical of my theory of spontaneous haemorrhage as a clinical entity that I would like to comment upon it. First, I should explain that the word "spontaneous," while apropos, obviously is incorrect, but I have employed it until a more appropriate or descriptive term can be found.

The authors state: "We felt that the theoretical concept of 'spontaneous bleeding' was unsound, that the laboratory experiments could hardly explain the reported clinical effects, and that all clinical studies claiming good effect lacked adequate control groups." They support their opinions by laboratory and clinical means and contend that oestrogen therapy has no effect on this kind of bleeding but serves merely as a placebo. The only point upon which they agree is that oestrogen therapy does no harm. However, they believe that this fact does not justify its use because: "We are afraid that such a drug will give the doctor who is using it a false sense of security, and that this, together with the additional expense, is against the best interests of the patient." I doubt that any competent clinician confronted with a haemorrhage can be lulled into a false sense of security regardless of the therapy.

It is inconceivable to me that the many authors who have reported favourably on the effects of oestrogen therapy on spontaneous bleeding were mistaken. Sometimes the results have been so startling and dramatic as to prompt reports of single cases. To ascribe all this evidence merely to coincidence or a placebo would indeed be singular. I have stated repeatedly that the majority of these haemorrhages will stop without any treatment, and that the purpose of hormonal therapy is to duplicate as far as possible this self-arresting mechanism. When a series of cases without controls is reported, I attribute to their authors a sense of discrimination and discretion based upon their experience rather than reject their observations because they lack laboratory confirmation. However, favourable articles with adequate controls, including one on prostatectomy, have been published during the past year.

But it is with the laboratory aspects of the article that I wish to take especial issue. I said long ago, and still maintain, that there are no standards, tests, or measurements in existence now whereby this disease can be detected, its course followed, or its prognosis determined. In this position, I find now that I am not alone. An editorial of the *Journal of the American Medical Association*[1] recently stated: "Current physiological knowledge does not suffice to explain the difference between bleeders and non-bleeders. The mechanisms normally responsible for the clotting of blood present a tangle of problems that have gone unsolved too long. Every cerebrovascular accident and every post-operative thrombosis or haemorrhage is a reminder for conclusive work in this field." The confusion that exists is described by the International Committee on Nomenclature and Blood Clotting Factors[2]: "The field of blood coagulation is one in which medical men and biological scientists have created such chaos that they do not understand what other workers are talking about, far less the clinician and the medical student." The deficiencies in our knowledge of haemostasis, which cannot be considered synonymous with coagulation, are emphasized by Thomas and his co-workers.[3] The conclusion of their exhaustive study of all the known factors in the haemorrhagic diathesis associated with leukaemia and allied disorders is equally applicable to spontaneous haemorrhage generally. They say: "Of 58 patients with leukaemia and allied disorders, 36 demonstrated haemorrhage. The correlation between a coagulation deficit and haemorrhage was disappointing. Not only does the cause of bleeding in many patients remain obscure but also there is no haemorrhage in others where it might be expected." I abandoned studies of coagulating factors, capillary fragility, and bleeding and clotting times because I have found them to be useless in this disease. The data regarding the effect of premarin on the haemostatic functions of normal individuals, which these authors went to so much trouble to obtain, could have been had for the asking.

The authors question the validity of my theory because it seems to them to be "very speculative and loosely founded." Undoubtedly it is speculative and also contains large elements of empiricism, but it has been based upon 23 years' study of the effect of oestrogen on bleeding and includes thousands of cases. My theory of spontaneous haemorrhage developed out of this experience. Intravenous oestrogen has been available only during the last eight years, and before then oestrogen in oil and oral preparations were used. Incidentally, it may be interesting to know that the first attempt to control bleeding with an ovarian hormone occurred in England in 1904. Grant,[4] the author, then also cautioned that, just because the bleeding had been quickly arrested, it would be unwise to jump to too hasty conclusions. Regarding the soundness of my concept, unexpected and most welcome support has come from A. J. Quick[5] in a special university lecture delivered at the University of London. He said: "To explain this apparent paradox it may perhaps be necessary to distinguish between spontaneous and traumatic bleeding. Such an idea has recently been expressed by Jacobson." . . . "Perhaps too much attention is being given to so-called accelerators and inhibitors."

Spontaneous haemorrhage, as I describe and define this disease, has a higher morbidity and mortality than any other human affliction. It includes many conditions that are now considered to be and are treated as separate clinical entities, such as epistaxis, cerebral, intraocular, delayed, intimal, gastro-intestinal, and many but not all forms of bleeding of obscure origin and from uncertain sources. I believe the majority of bleeding episodes are hormonal in origin and that the best therapy now available is intravenous oestrogen, although other hormones have been used successfully. Even so, it is not certain that these substances function as hormones during a haemorrhage or whether they have another action. Oestrogen surely is not infallible and must be used with some knowledge of what it is expected to do along with an adequate comprehension of the theory of spontaneous haemorrhage and the bleeding state. I have never advocated the use of oestrogen for all bleeding occasions. I recognize fully that the gathering of data and statistics is of vital importance, but I deplore the emphasis placed upon them in conditions which still are so enigmatic that, when applied, their true meaning and significance cannot be clear.—I am, etc.,

Petersburg, Virginia, U.S.A. PHILIP JACOBSON.

*"Premarin" is a complex of oestrogen sulphates prepared from the urine of pregnant mares.

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Control of Urinary Infections

SIR,—Mr. W. G. Q. Mills (December 24, p. 1884) rightly draws attention to the possibility of ascending infection alongside the catheter, but does not differentiate the problem in the two sexes. In the female the short urethra and the to-and-fro movement of the catheter make this type of infection almost inevitable, but unfortunately it is normally due to the patient's own coliform organisms, which are usually sensitive to antibiotics,[1] whereas the causative organisms involved in open catheter drainage are hospital organisms and usually resistant.

In the male we have so far been unable to prove bacteriologically, after serial swabbing of the urethra in patients in the post-operative period, that infection of the bladder does take place via the film of mucopus lying between the catheter and urethral mucosa, but this may well be a more serious problem in those on long-term drainage. We know, however, that our infection rate in post-operative patients has been reduced from over 90% to under 10% by the use of closed drainage and that the few infections resulting from the "peri-catheter route" are probably due to sensitive organisms.

Concerning prophylaxis, I agree a self-retaining Gibbon-type catheter would go a long way in preventing urethritis, but I believe there are certain practical difficulties in their manufacture, remembering that the introduction of a two-way lumen will immediately bring the calibre into that of the lower range of Foley balloon-catheters. The use of chlorhexidine ("hibitane") cream, applied by the patient himself at regular intervals to the external meatus, and of a cuffed Foley-type catheter in the female (preventing to-and-fro movement in the short urethra) are at the moment under consideration and trial in Bristol.—I am, etc.,

Southmead Hospital, Bristol. NORMAN SLADE.

REFERENCE

[1] Slade, N., and Linton, K. B., *Brit. J. Urol.*, 1960, **32**, 416.

Status Asthmaticus Treated by Hypnosis

SIR,—May I crave your indulgence to reply to Dr. Alan Akeroyd's letter (December 31, 1960, p. 1953)? While I cannot be certain that further questioning might not have revealed an unconscious death-wish, nevertheless, from the limited questioning of this patient that was possible, it would not appear to be likely. He had been successful in his career, his marriage, and his social relationships both before and after the onset of asthma. His onset had not been accompanied by any change in his life or severe psycho-trauma that might explain it. On the other hand, the family history of asthma suggested a constitutional factor. In addition he had suffered for several years from angina pectoris and he was a likely candidate for coronary occlusion.

It is well known to all who practise hypnosis that it is extremely difficult to make a patient give up his symptom if such a symptom is part of his adjustment to life. An interesting factor in this case was the absence of such a "need" for asthma, and in fact he had coped well for many years without it. Thus it seemed reasonable to postulate that emotional factors alone could not exclusively explain this patient's asthma, neither could they explain his sudden death.

May I conclude by saying that the relationship of asthma to psychodynamics is a vexing one, not easily studied by conventional scientific means? All that can be said is that in many patients suffering from asthma emotional factors have occurred. Whether *post* or *propter hoc*, and whether these factors were causal, has not always been clearly established. Needless to say, in many such patients who appear to have a psychodynamic basis for their asthma, hypnosis or drug therapy would be insufficient. In such patients these would have to be combined with psychotherapy and environmental adjustment where possible.—I am, etc.,

A. H. C. SINCLAIR-GIEBEN.

Department of Mental Health, University of Aberdeen.

SIR,—Dr. J. Maxwell's and Dr. Alan Akeroyd's comments (December 31, p. 1953) on Dr. A. H. C. Sinclair-Gieben's fascinating report on "The Treatment of Status Asthmaticus by Hypnosis" (December 3, p. 1651) are most illuminating and constructive. While I agree strongly with their remarks, it strikes me that further points need to be made. Firstly, the "panic state" which Dr. Maxwell describes as arising even in anticipation of an asthmatic attack in patients subject to status asthmaticus is a logical attitude based on past experience of hypoxia, and should be distinguished from the primary affective disorder which is so widely held to contribute to the aetiology. None the less, this panic state is clearly a useful pointer to the prognosis, and doubtless fortifies the vicious circle which manifests itself in bronchospasm. It is not, however, the primary lesion.

Secondly, the attendance at the bedside of a patient in status asthmaticus is not the occasion to embark on a protracted course of psychotherapy, however desirable that may be in the long term. The first task is to relieve the medical emergency by whatever means are expedient, and in this context symptom-banishment by hypnotic command may be justified, provided, as Dr. Akeroyd so rightly points out, the need is recognized to investigate the underlying psychodynamics, and that without undue delay. In this respect a recent article by Raginsky[1] is of great value in stressing the importance of evaluating "(1) what the disease means to the patient; (2) how the patient uses his symptoms, even a specific organic abnormality in the service of his neurosis; and (3) how the patient responds to the treatment situation."

According to French and Alexander[2] the commonest emotional conflicts of the asthmatic include "threats to dependent relationships"; therefore in undertaking the treatment of such a case by any psychotherapeutic means the doctor may be tacitly accepting responsibility for indefinitely bolstering up a threatened dependency state, and unless he is prepared to meet the demands implicit in this role the therapeutic relationship will collapse. That the symptom of asthma can be of priceless value to the patient I have experienced to my cost. Amongst half a dozen asthmatics treated by hypnosis in this practice, there was one 25-year-old man in status asthmaticus, to whom I was called. Since he was adrenaline-fast and intolerant of therapeutic doses of intravenous aminophylline (however slowly given), I resorted to symptom-removal by direct suggestion under hypnosis, and was gratified by the immediate and complete response. I was able to leave him altogether symptom-free within half an hour, and he appeared delighted at his relief. I did not start psychotherapy. On the next occasion I was required to treat his asthma I offered to provide the same relief by hypnosis again,

but he refused absolutely and without explanation. I can only conclude that I should have substituted another prop in place of his symptom, instead of robbing him of all support.

This impression was confirmed for me when, having relieved a 9-year-old boy of a sharp attack of asthma by direct suggestion under hypnosis, I found the following day that he had been able to cathect his conflict by developing a widespread urticaria. This, however, unlike his asthma, was suppressed by promethazine. Presumably orthodox drug therapy is acceptable because it does not threaten the validity of the symptom, hence sparing the integrity of the underlying conflict, because no psychological causation is implied by such treatment and the compensation can therefore remain intact.—I am, etc.,

Oxford. C. A. S. WINK.

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[1] Raginsky, B., *Int. J. clin. exper. Hypnos.*, 1960, **8**, 181.
[2] French, T. M., and Alexander, F., *Psychogenic Factors in Bronchial Asthma*, 1941. Psychosomatic Medicine Monograph IV, part I. National Research Council, Washington.

Anaesthetizing the Nose

SIR,—We thank Mr. N. L. Crabtree (January 14, p. 131) and Dr. G. P. Fox (p. 132) for drawing our attention to the late Dr. E. S. Curtiss's method for anaesthetizing the nose. Dr. Curtiss's method was a modification of Moffett's, but we think ours (December 12, p. 1956) is better as the time it requires is only three minutes instead of ten, and, further, no special apparatus is needed; in fact, even a syringe is not necessary, as the fluid can easily be poured into the nose from a medicine glass or measure. As to the volume of fluid, there are two reasons for using a large volume; first, it allows a more dilute solution of the anaesthetic drug to be used, which is safer, and, secondly, filling up both sides of the nose brings the anaesthetic and vasoconstrictor solutions directly into contact with all the mucous membrane, causing this to shrink and so increase the space available for operating.

He is a brave man who claims to be original in the correspondence columns of your journal, and we make no such assertion, but, judging by the number of patients who still have bits of stick, cotton-wool, and lengths of gauze (not to mention a variety of crystals and creams) stuffed up their noses, there is every reason for publicizing Moffett's method and anyone else's modification of it.—We are, etc.,

Hillingdon Hospital, Uxbridge, Middlesex. R. I. BODMAN. F. BOYES-KORKIS.

SIR,—I have read with interest the letter on this subject by Dr. R. I. Bodman and Mr. F. Boyes-Korkis (December 31, p. 1956), but was surprised to see no reference made to the modification of Moffett's method described by Curtiss.[1] I have used Curtiss's modification for a number of years and have known it fail only once. This was in a patient who had polypi which were completely blocking and deforming the nose and were protruding from both anterior nares. The method usually provides a very bloodless field for the surgeon, and this aspect of it has been referred to elsewhere.[2]—I am, etc.,

Department of Anaesthetics, Royal Infirmary, Aberdeen. W. N. ROLLASON.

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Clinic Doctors

SIR,—I feel I must attempt to clear up some of the gross misconceptions in the letter by Drs. N. R. Garden, B. K. Attlee, and Rosemary M. W. Ince (January 14, p. 132). The function of the clinic doctor has never been to see sick babies and send them with a note to their family doctor. The whole interest of clinics and clinic doctors is in well babies. Clinic medicine is prophylactic medicine. I thought every medical student at least understood that. The dramatic fall in the mortality of smallpox, diphtheria, whooping-cough, and poliomyelitis alone "justifies the existence" of these clinic doctors, but there is also the decline in infantile gastro-enteritis and bronchopneumonia, both traceable to educative work done at the clinics. There are other things, too, that perhaps matter less, like clothing standards, eating habits, and cleanliness (would a G.P. have any idea how many years of grind it takes to get rid of head lice in one slum family?).

From my own experience there is a very real place for prophylactic mental health in welfare clinics. A behaviour disorder at 18 months will clear up in three sessions. If left to develop till 3 years it may well take six months. By the time the child guidance clinic is reached it will be a matter of years. If the histories of children at child guidance clinics are carefully taken, minor behaviour disorders at the toddler stage will usually be elicited, but no expert help was available for them. If clinic doctors were attached part-time to child guidance clinics they would be then the ideal people to detect and treat these minor disorders. They might also learn to treat the anxieties of the parents, or refer them for more expert treatment. The welfare clinics would then become, as well as prophylactic centres for physical health—prophylactic centres for mental health.—I am, etc.,

Wednesbury, Staffs. HAZEL B. BAKER.

SIR,—You published a letter by Drs. N. R. Garden, B. K. Attlee, and Rosemary M. W. Ince (January 14, p. 132) which was derogatory of clinic doctors. Presumably all doctors who participate in well-baby clinics, including general practitioners, hospital paediatricians, and local authority medical officers, are included in the reference.

While most of the castigated doctors will read the remarks with an amused tolerance others may be less diverted by what may appear to some to be a gratuitous affront. As we are kept in ignorance of the reasons which prompted this criticism perhaps the complainant doctors would give the facts on which this sweeping condemnation is based, and at the same time indicate the special circumstances which place them in a position to pass judgment on a whole branch of our profession.—I am, etc.,

Town Hall, Romford. F. GROARKE.

Carpal Tunnel Syndrome

SIR,—I was interested to read Dr. David Kendall's paper (December 3, 1960, p. 1633) which was chiefly concerned with the carpal tunnel syndrome. I have been interested in this subject myself for a number of years, and at the Canadian Orthopaedic Association meeting at Jasper in 1956 I presented a paper and introduced a test which I have found of some help. It has always seemed to me that if the carpal tunnel syndrome was caused by ischaemia of the median nerve in the carpal

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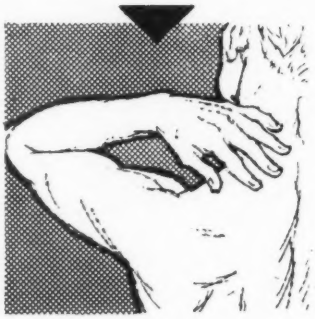

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tunnel, the Gilliatt and Wilson test[1] was an inaccurate test in that the whole arm below the cuff of the sphygmomanometer is made ischaemic. If, however, the pressure is reduced in the cuff to lie between the systolic and diastolic blood-pressures of the patient then blood can flow into the arm but is prevented from escaping. Congestion then ensues in the carpal tunnel and theoretically the symptoms should be aggravated. Practically, this is so in many cases but not in all. I carry out the test by inflating the cuff above the systolic pressure of the patient and leaving it for two minutes, asking them to describe in detail each change of sensation that occurs as it occurs. I then reduce the pressure to lie between the systolic and diastolic pressures, warning the patient that a feeling of distension will occur but this is to be ignored, and asking the patient to describe again any changes that take place in the hand and forearm. The pressure only has to be left at this level for a maximum of one minute, as by then any case of carpal tunnel syndrome will have been revealed by either the occurrence of severe pain in the palm, fingers, or forearm in the median distribution, or by paraesthesiae in the median distribution. At times the pain is so severe that the patient may even become tearful.

A normal individual subjected to this test may complain of paraesthesiae, but these will occur in the ulnar distribution first. Immediately after this test, tenderness is often elicited on pressure over the median nerve at the distal edge of the anterior carpal ligament, and I differ from Dr. Kendall in believing that it is the distal edge of the flexor retinaculum and not the proximal border which induces the carpal tunnel syndrome. This is confirmed surgically by the fact that if the distal border is not divided the patient is not relieved of symptoms. I do not think I have ever found tenderness at the proximal border.

Although I think that repeated dorsiflexion of the wrist, as suggested by Brain, Wright, and Wilkinson,[2] may cause the carpal tunnel syndrome in some cases, I am equally certain that prolonged flexion of the wrist, associated with increased tension of the flexor tendons, is a more definite cause of the syndrome. This is seen in commercial travellers who spend hours at a time hanging on to the upper edge of the steering-wheel of a car, with their wrist flexed. It is also seen commonly in ladies who knit, where the wrist that develops the carpal tunnel syndrome is the wrist that is kept in a flexed position. It is also seen in nurserymen who are constantly lifting and moving filled flower-pots, holding them with the wrists flexed, and I have seen it in pneumatic-drill operators who hold the machine with flexed wrists. Dr. G. S. Phalen (personal communication) has confirmed this observation by demonstrating that if the wrist is flexed fully and held actively in that position for two minutes the patient's symptoms are aggravated.

I disagree with Dr. Kendall's remarks about pregnancy, especially his statement, "No special significance can be attached to this." I find it extremely significant that the condition develops in pregnancy during the latter half. It is during this time that there is increased fluid-retention in the body and this fluid-retention causes increased pressure in the carpal tunnel. Immediately the confinement is over and the retained fluid begins to be excreted, the symptoms subside quite dramatically. Other conditions that cause retention of fluid in the body also give rise to the carpal tunnel syndrome, and it is interesting to note that a carpal tunnel syndrome with mild symptoms is often converted into a carpal tunnel syndrome with very severe symptoms by giving a patient phenylbutazone in full dosage, enough to cause increase of body weight due to fluid retention, and that the severe symptoms are immediately relieved when phenylbutazone is stopped. I, too, was somewhat sceptical about treatment with injections of hydrocortisone locally, until I was forced to try it in patients with severe symptoms who were unable to accept the more common forms of treatment at that time. I used 25 mg. of hydrocortisone and injected it deeply amongst the tendons behind the median nerve. Initially there was often an increase in pain, probably due to the amount of fluid injected, but invariably these acute cases were relieved of their symptoms within a day or so, but, nevertheless, many of these recurred three to six months later. Phalen has pointed out[3] that he has found a high percentage of rheumatoid changes in the synovia of the flexor tendons in patients upon whom he has operated. Although I have been unable to confirm this myself, if it is true the rationale for the use of hydrocortisone is plain and is confirmed by its clinical effects.

Finally, I would advocate a small transverse incision at the wrist rather than a longitudinal incision in the palm to divide this ligament. I have seen scar tenderness occur and remain too often when the approach has been made through the palm.—I am, etc.,

Winnipeg, Manitoba. W. R. WELPLY.

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2 Brain, W. R., Wright, A. D., and Wilkinson, M., ibid., 1947, **1**, 277.
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Antidiabetic Drugs in Parkinsonism

SIR,—I was interested to see the recent letter by Drs. R. O. Gillhespy and A. Paton (November 26, p. 1597) on the treatment of Parkinson's syndrome with chlorpropamide. Following recent reports on the value of sulphonylureas in non-diabetic conditions, I have been conducting a clinical evaluation of chlorpropamide in the treatment of Parkinson's syndrome.

In all cases the drug has been administered once daily in the dose range 100–150 mg., although during the latter stages of this investigation I have not used more than 100 mg. daily, since there is no therapeutic advantage in increasing the dose beyond this level. The only dietary precautions which seem necessary are to ensure that meals are taken regularly through the day as well as a bed-time carbohydrate snack.

The results in 14 cases of Parkinson's syndrome were: good response 6, moderate response 4, no response 4. The duration of treatment before improvement was shown varied from five days to six weeks. Two patients who were severely crippled with rigidity and unable to walk or feed themselves properly deserve special mention. Speech was almost impossible in one and very difficult in the other. After treatment both showed quick and remarkable improvement, rapidly recovering the ability to walk and feed themselves, regaining facial expression, and being able to talk again.

The only significant side-effects found were due to hypoglycaemia in two patients. One had a relatively low noon blood-sugar, and the other a hypoglycaemic reaction from which a full recovery was made. It must always be remembered when using any sulphonylurea in the non-diabetic that the occasional patient will be more sensitive to the hypoglycaemic effect and the dose accordingly reduced.

Although this is a small series and the results are based on clinical impressions only, it appears that chlorpropamide is of definite value in the treatment of Parkinson's syndrome. Although so far I have not been able to study the effect of placebos, in view of the nature of the clinical conditions in these patients I am convinced that this is a real effect of the drug and that chlorpropamide is of value in the treatment of Parkinson's syndrome.

Chlorpropamide has also been given similarly to seven cases of chronic long-standing disseminated sclerosis and one acute early case, with distinctly promising results. Of seven cases of angina pectoris, five would appear to have improved. A further controlled trial in these conditions is indicated.

It must be fully realized that so far there has been no evidence of a cure of these various conditions being effected. The effect of the drug has been to produce in many instances a definite amelioration of crippling symptoms, and in the favourable cases much more than has ever been produced by other drug treatment. The mode of action of chlorpropamide in these conditions is unknown, but two possible theories have been advanced. Firstly, Fearnley and Chakrabarti[1] have shown that it will increase fibrinolytic activity in the fasting state, but it is difficult to explain the effect in Parkinson's syndrome after such a short period as five days on this basis. Secondly, Reinert[2] has shown that it will increase the glycogen uptake of cardiac muscle and increase the rate of recovery of anoxic cardiac muscle. In addition this drug decreases lactic-acid production, and these changes may well be responsible for the beneficial effect in angina. These results are encouraging, and there is reason to believe that further work on this and related compounds may lead to a significant advance in the treatment of these conditions.—I am, etc.,

London W.1. JAMES ROBERTSON.

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Keloids after B.C.G.

SIR,—I read with interest the paper "Observations on Vaccinating Schoolchildren with Danish Fresh B.C.G." by Dr. K. Neville Irvine and Mr. A. Barr (October 15, p. 1119). Our views on the local reaction to B.C.G. and its relation to allergy seem to swing like a pendulum. Hertzberg[1] expressed the opinion generally held in Scandinavia that there was a positive correlation between the size of the local reaction and the level of post-vaccination allergy. The experimental studies by the U.S. Public Health Service[2] supported the generally held belief that the immunizing power of B.C.G. depended upon the viability of the vaccine and showed that the best immunity in animals was produced by vaccine that also produced the strongest degree of tuberculin allergy. But in contrast to the opinion expressed by Hertzberg and other B.C.G. workers the size of the local reaction (although a sensitive indication of the total number of bacilli, living or dead) was not a reliable guide to the degree of immunity induced by vaccination. For field evaluation of the results of vaccination, the lesion could not be taken as a measure of the potency of the vaccine.

In recent years we find a renewed interest again in the use of the local lesion as an index of the potency of B.C.G. vaccine in place of the post-vaccination tuberculin test. Heaf[3] has suggested the desirability of measuring the local reaction six weeks after vaccination, and retesting only those in whom it was less than 4 mm. in diameter. Dr. Irvine and Mr. Barr have now more or less repeated the same suggestion.

I am afraid that the method proposed, though undoubtedly welcome, can be of only limited application in the Tropics, because the keloids that occur at the vaccination site in a considerable proportion of cases may mask the true size of the local lesions. In India, Dr. Kul Bhushan, Research Officer, All-India B.C.G. Assessment Team, has observed the occurrence of keloids in large numbers after B.C.G. vaccination. For instance, in his report to the Indian Council of Medical Research for 1958–59[4] he has reported an incidence varying from 1.8 to 59% among the groups examined by him during that year in Assam, coastal areas of Orissa, and Bombay. Unfortunately there is no information in the report regarding their size. The incidence seems to differ in different parts of India, being generally higher in the hot and humid coastal areas than elsewhere. I have therefore been greatly interested in the prevention of this annoying complication, which does not seem to be peculiar to India but is also known to occur in other countries in South-east Asia.

Certain characteristics of the post-B.C.G. keloids may be mentioned. They generally occur at the site of vaccination on the shoulder and not on the forearm after the tuberculin test, although the amount of trauma is identical in both cases. They therefore appear to be different from keloids described in surgical textbooks and are perhaps of different aetiology. They seem to be caused by some ingredient in the vaccine, the B.C.G. bacilli or one of the components of the suspending medium, which is diluted Sauton. I had suggested at the meetings of the B.C.G. Subcommittee of the Indian Council of Medical Research more than once that studies should be set up to determine, if possible, the causative factor by injecting different groups of children (in selected areas where keloid formation was known to be high) with the various components of B.C.G. vaccine and observing the local reactions that may develop. To my knowledge, the suggestion has not been taken up yet.

In this connexion, may I venture to suggest that the development of keloids after B.C.G. vaccination may in some way be related to non-specific tuberculin allergy? My reasons are these. Like keloid formation, non-specific tuberculin sensitivity also is prevalent in low-lying humid areas like the coastal regions of India and less frequent at high altitudes. This may, however, be a chance coincidence. Keloid formation does not appear to be a problem after B.C.G. vaccination in the Scandinavian countries, North U.S.A., etc., where there is little or no non-specific tuberculin sensitivity. Between these two extremes, the incidence of keloids seems to depend on the level of prevalence of non-specific tuberculin sensitivity. I hope those interested in the problem and possessing the necessary facilities will undertake controlled studies to determine the causation of this unpleasant complication.—I am, etc.,

Madras K. S. RANGANATHAN.

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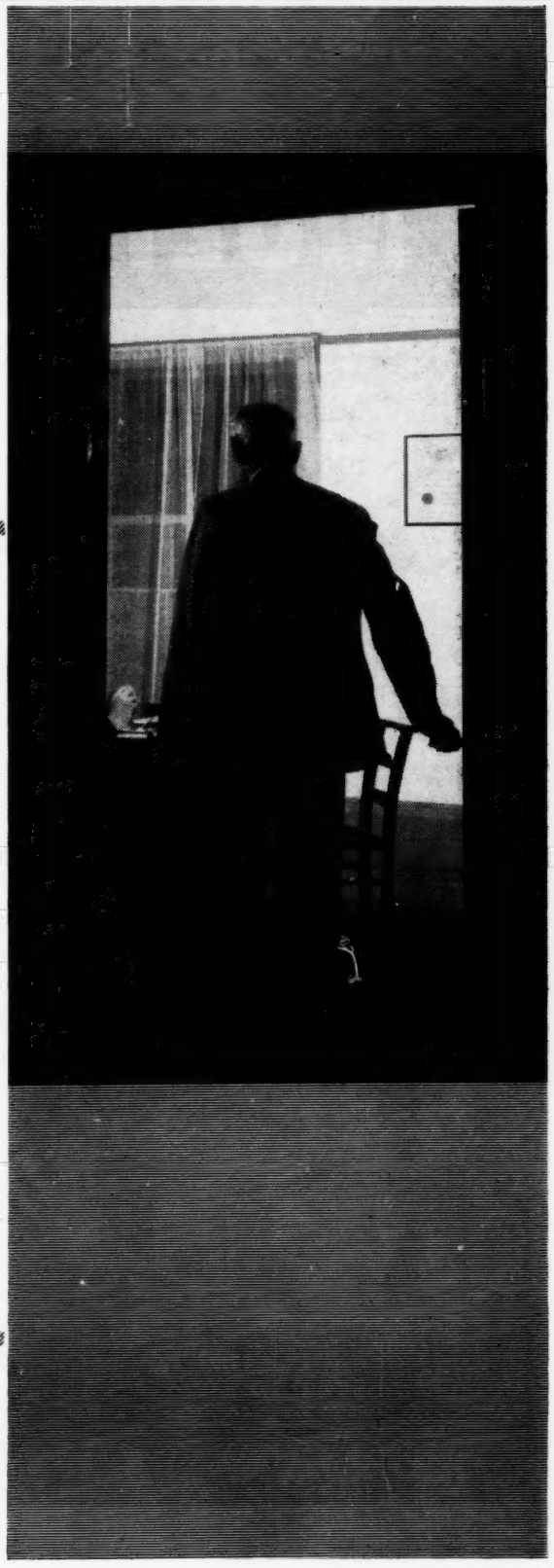

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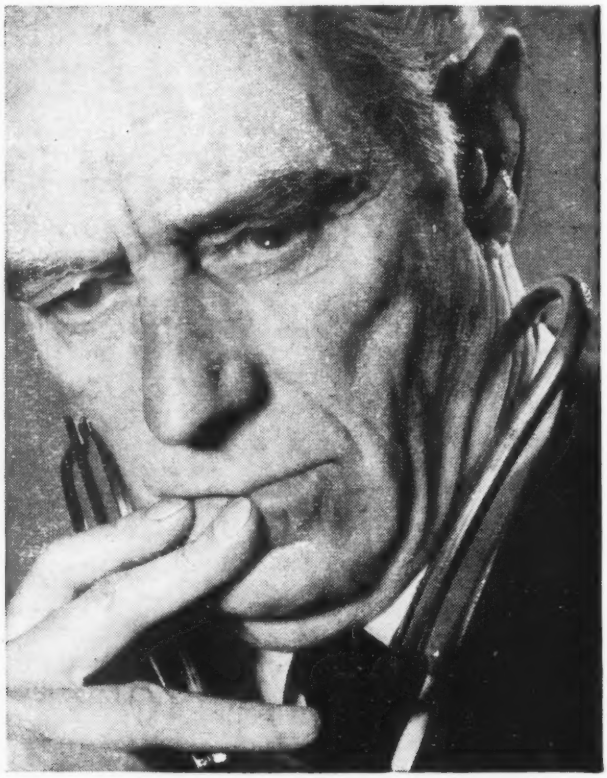

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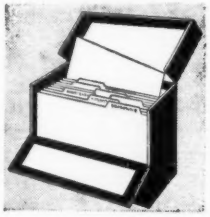

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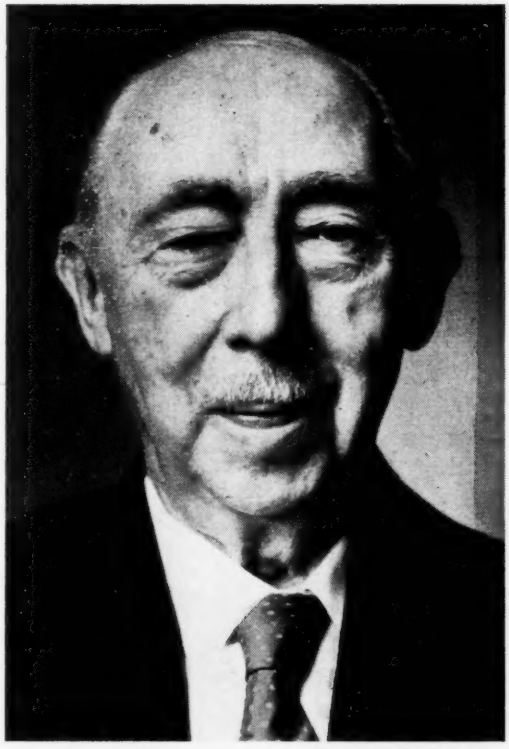
Obituary

Sir GEOFFREY JEFFERSON, C.B.E., M.S., F.R.C.P.

F.R.C.S., F.R.S., Hon.M.Ch., Hon.LL.D., Hon.Sc.D., Hon.F.R.C.S.Ed., Hon.F.R.C.S.I., Hon.F.R.F.P.S., Hon.F.R.A.C.S., Hon.F.A.C.S.

Sir Geoffrey Jefferson, emeritus professor of neurosurgery in the University of Manchester and consulting neurosurgeon to Manchester Royal Infirmary, died on January 29 at the age of 74. His death means much more than a serious loss to neurosurgery, for he had been everywhere regarded with affectionate respect as one of the leading figures in British medicine. His election to the Fellowship of the Royal Society in 1947 was a well-deserved tribute to a man whose contributions to scientific knowledge were made, not, as is more customary, in the laboratory, but in the wards and operating theatres of his hospitals.



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Geoffrey Jefferson was born in County Durham on April 10, 1886, the son of the late Dr. A. J. Jefferson, who became a well-known general practitioner and surgeon in Rochdale. His great-grandfather served in the Royal Navy, entering as a midshipman to Captain Bligh (of the *Bounty*). Educated at Manchester Grammar School and at the University of Manchester, Geoffrey Jefferson won the Sidney Renshaw prize in physiology at Manchester and the University of London prize in anatomy. After completing his clinical training at the Manchester Royal Infirmary he took the conjoint qualification and graduated M.B., B.S. (London) in 1909, passing with honours and receiving a distinction in surgery. Two years later he took the F.R.C.S., and in 1913 he proceeded M.S., winning the gold medal.

After resident posts at Manchester Royal Infirmary and at the Cheyne Hospital for Children, Tite Street, Chelsea, he became demonstrator in anatomy in the Manchester Medical School under Professor Elliot Smith. Even at that early stage in his career he was developing a keen interest in neurological problems. Later he continued his postgraduate surgical training at the Cancer Hospital in London. In 1914 Jefferson married Dr. Gertrude Flumerfelt, of Victoria, British Columbia, and a former medical student at Manchester, and went to live at her home town in Canada, hoping, as he said, "to find an opening for a young and ambitious surgeon with limited means." At Victoria he soon built up a surgical practice and became associated with the local hospitals, but with the outbreak of war he was back in Britain in the R.A.M.C. In 1915 he accepted the invitation of the late Sir Herbert Waterhouse, with whom he had worked at Tite Street, to go to Russia with the Anglo-Russian Hospital. In 1917 he returned to Britain and then went as a surgical specialist to France, where he worked at the 14th General Hospital, dealing specially with gunshot wounds of the head.

After the war he went to Boston to work for a short time with Harvey Cushing, and on his return to Manchester he was appointed surgeon to the Salford Royal Hospital. Shortly afterwards he joined the staff of the Manchester Royal Infirmary, becoming head of the newly established neurosurgical department in 1926. He was also elected to the staff of the National Hospital in Queen Square, London—a rare honour for a provincial surgeon. In 1939 Manchester became the first university in Britain to have a chair of neurosurgery, and Jefferson was of course its first occupant. He retired, under the age limit, in October, 1951, when the title of emeritus professor of neurosurgery was conferred upon him. One of his proudest moments was when, on May 3, 1950, Lord Webb-Johnson opened the new operating and *x*-ray diagnostic units for neurosurgery at Manchester Royal Infirmary, which were described and illustrated in the *British Medical Journal* at the time.

During the thirty years between 1894, when the late Sir William Thorburn, of Manchester, delivered a Hunterian Lecture before the Royal College of Surgeons of England on the surgery of the spinal cord and its appendages, and 1924, when, in a similar capacity, Jefferson spoke on the surgery of the cervical spine, great progress was made in neurosurgery. During the past 35 years advances have been even more spectacular, thanks to the work of men like Jefferson and Cairns. It is interesting to record that Thorburn did not have the success in neurological surgery that he had hoped, and he is reported to have said that he wished he had not attempted to specialize as he did because this had lost him other surgical work. Times had changed by Jefferson's day, for he had an extensive practice, his reputation for thorough diagnostic investigation and painstaking attention to operative detail being unsurpassed.

During the second world war Jefferson acted as consultant adviser in neurosurgery to the Ministry of Health and to the Ministry of Pensions, and for his services he was appointed C.B.E. in 1943, and in later years he was a member of the Manchester Regional Hospital Board. In 1942 he had received the Honorary Fellowship of the Royal Faculty of Physicians and Surgeons of Glasgow. Further honours quickly followed. He was awarded the Doyne medal at the Oxford Ophthalmological Congress in 1945; he was elected a Fellow of the Royal Society and a Fellow of the Royal College of Physicians of London in 1947; and three years later he was knighted. In 1948 he was awarded the Lister medal of the Royal College of Surgeons of England, and in the same year the honorary degrees of M.Ch. of the University of Dublin and the LL.D. of the University of Glasgow were conferred upon him. In 1952 he was admitted to the Honorary Fellowship of the Royal College of Surgeons in Ireland. In introducing Sir Geoffrey to the College, Mr. William Doolin referred to the period

of training which Cairns and Jefferson had under Harvey Cushing in Boston after the first world war, and continued: "If there be a special Valhalla for surgeons, Cushing is there to-day rejoicing to see honour done to the man whom he declared to be the possessor of one of the most searching and original minds in British medicine." In 1957 further honours came thickly upon Jefferson—the honorary LL.D. of Manchester, the honorary Sc.D. of Cambridge, the honorary F.R.C.S. of Edinburgh, the honorary F.R.A.C.S., and the honorary Fellowship of the American College of Surgeons. In 1960 he received the honorary degree of D.Sc. from Birmingham University.

Jefferson said of himself that he was the writer of a boring number of addresses, but he was one of the most sought-after lecturers of his day. He delivered the Sir William Macewen memorial lecture in surgery at the University of Glasgow in 1948; the John Mallet Purser lecture of the University of Dublin in 1949; the Martin lecture before the American College of Surgeons and the Donald C. Balfour lecture in surgery at the University of Toronto in 1950; the Skinner lecture of the Faculty of Radiologists in 1951; the Rickman Godlee lecture at University College, London, in 1952; the Sherrington lecture at the University of Liverpool and the Bowman lecture before the British Ophthalmological Society in 1953; and the William Sheen memorial lecture at Cardiff in 1955. For his Lister Oration at the Royal College of Surgeons of England in 1949, which was published in this journal, he took as his subject "The Mind of Mechanical Man," and in the Cavendish lecture before the West London Medico-Chirurgical Society in 1952 he discussed the brain as an integrated machine. In 1957 he gave the Victor Horsley memorial oration in B.M.A. House, and in the following year he gave the first Hugh Cairns memorial lecture at the London Hospital. He was a founder member, a past president, and a former secretary of the Society of British Neurological Surgeons, a Fellow of the International Surgical Society and of the Association of Surgeons of Great Britain and Ireland, of which he was president in 1951–2, an Honorary Fellow of the Royal Society of Medicine, being president of the Society's neurological section in 1940, and Hughlings Jackson lecturer and medallist in 1955. He served as a vice-president of the Section of Neurology and Psychology at the Annual Meeting of the B.M.A. at Nottingham in 1926; of the Section of Neurology and Psychological Medicine in 1929 (Manchester); and of the Section of Neurology in 1932 (Centenary Meeting); and he was president of the Section of Neurology and Psychological Medicine in 1938 (Plymouth) and of the Section of Neurology in 1955 (Toronto). He was also a past president of the Manchester Medical Society, of the Manchester Pathological Society, and of the Manchester Surgical Society, and an Honorary Fellow of the British Orthopaedic Association. From 1948 to 1952 he served as a member of the Medical Research Council, and from 1953 to 1960 he was the first chairman of the Clinical Research Board. Recognition of Jefferson's eminence as a neurosurgeon was world wide, and in 1957 he was president of the First International Congress of Neurological Surgery, held in Brussels. An Honorary Fellow of the American College of Surgeons, he was an Honorary Member of the American Neurological Association, the Harvey Cushing Society, the American Neurosurgical Society, and the American Academy of Neurosurgery; and scientific and surgical societies in Canada, India, France, Russia, Sweden, Holland, Norway, Spain, and Austria acknowledged his work by electing him an honorary member or corresponding member. A great traveller, Sir Geoffrey was a member of the B.M.A. delegation which visited Russia in 1956: rumour has it that his famed unpunctuality sometimes kept his colleagues on tenterhooks during this journey, though, as departure times became imminent, he would stroll along unruffled and surprised that anyone should be concerned about him.

Sir Geoffrey Jefferson's publications—papers, contributions to textbooks, and addresses—numbered about 150. A frequent contributor to this journal, he possessed a characteristic literary style which reflected the power of his intellect. In a tribute to his friend, Sir Hugh Cairns, he wrote in these pages: "There is this to comfort us—man dies, but those who have created something live on to influence other generations." His own influence will be enduring.

Sir Geoffrey Jefferson is survived by his widow, two sons, and a daughter. Both his sons are members of the medical profession: Dr. J. M. Jefferson is lecturer in neurology in the University of Birmingham, and Mr. A. A. Jefferson is consulting neurosurgeon to the United Sheffield Hospitals.

D. W. C. N. writes: Geoffrey Jefferson has occupied a unique and dominating position in British neurosurgery. The quiet voice, unhurried movements, and unassuming manner which were so loved concealed an immense capacity for work, physical and mental, a keen intellect, and a critical judgment that quickly penetrated unimportant details to lay bare the kernel of a problem. His breadth and depth of knowledge were such that he was able to relate observations in new fields of investigation to his own rich clinical experience and to that of others derived from his readings and his conversations, and this was facilitated by his very retentive memory and quick perception. Although his interests were diverse—cricket, fishing, philosophy, and general reading—his life's passion was the nervous system—its anatomy and physiology and the disorders of its function. For him neurosurgery provided a practical outlet for this preoccupation.

As one traces the development of modern neurosurgery during the last four decades, one sees how he rapidly assumed pre-eminence, not so much by his contributions to knowledge—though these were important—but by his general attitude to his chosen subject. In his writings and in his words we constantly find an aim to use all observations derived from the clinical study of patients and of operations and their results as a basis for extending and unifying knowledge. It was this example which made him outstanding as a neurosurgeon, for in this branch of surgery technique may easily absorb attention and energy so that none remains for the more intellectual problems with which it abounds. Inspection of a list of his writings (which approximate to 150) reveals the wealth of his experience and the intensity with which he studied his patients. Some subjects recur and seem to have had a particular fascination for him. Injuries of the head and of the spine certainly held such a position. His contributions to the natural history of intracranial aneurysms and of pituitary adenomas were outstanding. His Sherrington lecture on "The Invasive Adenomas of the Pituitary" is a model essay and beautifully illustrates how valuable can be the study of individual cases by an informed and inquiring mind. His writings—as did his conversation—reveal how his mind preserved its youth and enabled him to absorb and keep abreast of the great developments of neurophysiology which have occurred since the second world war—that is, during his seventh decade. We find him giving addresses on the use of radioactive isotopes and on the relationship of cortical mechanisms to the reticular formation. In "Mechanical Minds" he shows clearly his understanding of modern views on the physiology of the neurone, and expresses his belief in the contribution yet to be made by biochemistry.

Neurosurgery owes much to Geoffrey Jefferson for the part he has played in the life of the Society of British Neurological Surgeons. He was primarily responsible for its foundation in December, 1926, with 14 members of whom only Professor Adams McConnel and Professor Norman Dott survive. He was elected secretary, and he retained this office until 1952. He was president in 1934–6 and again in 1954–6. He has exercised a great influence on its activities and development; although it has grown tenfold, it has retained an informality in its meetings which has been of great value to all its members, and this is largely the result of his example. His advice in devising programmes and in suggesting centres to be visited has helped to maintain a high standard and fostered enthusiasm. He came to know

all members, and the more recent soon realized why he occupied such a pinnacle of affection and respect. In an address to the Old Mancunian's Association, he remarked that "one of the great troubles with human beings and why we lack wisdom is that we do not live long enough to see the long-term effects of events we have caused." It is fortunate—and it must have given him great happiness—that here in the Society was an event largely of his causation which so prospered in his time and has been productive of so much of value in the subject he loved.

Neurosurgeons in Britain and throughout the world will mourn deeply for a man who held their warmest affection and admiration, whose judgments and criticisms were always made with humour and gentleness, and whose influence upon neurosurgery is of the kind that endures, for it was an example and a manner of thinking. For us, this is a vivid memory; for those who follow us it is clearly and permanently recorded in his writings. It cannot be better expressed than in his own words: "We can only record the fact that some minds have this curiosity, this kind of inspired dissatisfaction, a power of synthesis and diligent pursuit of an idea that leads not only to discovery but, short of that, to better performance in the world of human beings."

Members of the Society will wish to express their deepest sympathies to Lady Jefferson and her children. Lady Jefferson frequently accompanied her husband to the Society's meetings and on visits abroad, and she was always sure of receiving a warm welcome. Her constant care for her husband's well-being and her companionship provided an essential contribution to his life's work. Members will recall the happy memory of a meeting in London on November 11, 1955, when they were able to demonstrate their affection by presenting his portrait to Sir Geoffrey and Lady Jefferson, and when Professor Dott spoke of the Society's indebtedness to Lady Jefferson.

We are indebted to Sir HARRY PLATT, Bt., for the following appreciation: For me, the death of Geoffrey Jefferson has brought to an end 56 years of a friendship based on affection and deep understanding. We entered the Medical School of the University of Manchester together in October, 1904, and soon sought each other's company. Although in our undergraduate years and in the examinations of the University of London we appeared to be rivals for academic prizes, we did not feel we were competitors. I well remember Geoffrey saying a few years ago in his attractive and whimsical way that we had not really wanted the same things—perhaps a penetrating observation! When he left to settle in British Columbia in 1912, I felt his absence from the scene; but, more important, it then seemed that Manchester had lost him. But fate, in the guise of the first world war, determined otherwise, and, after serving in France, the Grangethorpe Hospital of the Ministry of Pensions and the Salford Royal Hospital opened their doors to him, and so made possible the creation of the famous Manchester School of Surgical Neurology.

Throughout his most distinguished career his labours were colossal and unceasing; and it must be remembered that he rarely enjoyed what Sir John Bland-Sutton regarded as essential for a successful surgeon—robust health. Looking back on the past history of the Manchester Medical School, which in neurology alone has been adorned by such men as James Ross, William Thorburn, and John Stopford, I do not see any figure with an intellectual equipment as superb as that of Geoffrey Jefferson. In this respect, in my judgment, he ranked with Elliot Smith—not, of course, a Manchester graduate—under whom we both worked as demonstrators in anatomy, and whose inspiration was responsible for Geoffrey's choice of neurology as a career. Despite severe bouts of ill-health during the past two years, at times walking with death, Geoffrey Jefferson's radiant personality and powerful mind continued to influence the whole world of neurological surgery, and indeed of neurological science. His determination to die in action, as it were, was one of the characteristics of this great and lovable man.

CHEVALIER L. JACKSON, M.D., M.S.

Dr. Chevalier L. Jackson, professor of laryngology and broncho-oesophagology at Temple University Medical School, Philadelphia, and a laryngologist of international renown, died at his home in Philadelphia on January 13.

Chevalier L. Jackson was born in Pittsburg on August 19, 1900, the son of Chevalier Jackson, the world-famous laryngologist who died two and a half years ago at the age of 92. Graduating M.D. at the University of Pennsylvania in 1926 Chevalier L. Jackson pursued his father's specialty and was appointed clinical professor of broncho-oesophagology at Temple University in 1929. He travelled extensively, in South America and Europe particularly, lecturing on his subject and attending international conferences, and he received many honours and distinctions from learned societies all over the world. At home he was a past-president of the American Oesophagological Association and of the American College of Chest Physicians, and he was at one time secretary of the Pan-American Medical Association. The author of numerous articles and contributions to textbooks, he was the editor-in-chief of the *Quarterly Review of Oto-rhino-laryngology and Broncho-esophagology*.

Mr. MAXWELL ELLIS writes: The death of Chevalier L. Jackson brings to an end a world-famous father and son succession extending for 60 years. Several similar family regimes are chronicled in medical history, but none showing so many unique features. The father permanently enriched humanity and achieved medical immortality when, after years of untiring proselytism, he made peroral endoscopy of the bronchi and oesophagus a routine examination, while also contributing many original ideas to clinical medicine and pathology. The son was no less concerned at first in forwarding the cause of peroral endoscopy, and later his own work in laryngeal disease. A burning zeal in both men led them to spare no pains or discomfort in communicating and teaching their ideas and techniques, in the pursuit of which they became extraordinarily eloquent and peripatetic, and were untiringly determined.

The two men bore only a slight physical resemblance, and were even less alike in temperament. Whereas his father was a recluse in private life, "C. L." enjoyed the social round, especially dining with his friends. Although he often thus burnt the candle at both ends, he was always up betimes, working on a lecture or a paper, before leaving for the clinic. Here he was beset by much administrative work, for which he had little taste. After this was out of the way, he was free to show his mastery of his craft, both in clinical acumen and in operative technique, and he loved it. His many contributions to laryngology and to diseases of the chest need no recounting and are part of the structure of medicine.

"C. L." had a keen and penetrating mind, and was an entertaining companion. Somehow or other he found time to be widely read and well informed; he enjoyed music and the theatre and was a linguist of some capacity. He held his opinions strongly, and discussion often became argument, sometimes vociferous and turbulent. However, one would eventually adjourn to the kitchen to raid the refrigerator and part amicably for bed.

He loved people when meeting them for the first time, and, even more, meeting them again. He never forgot a name or a face, as hundreds of people all over the world will recall. I can vouch for it, as I knew him intimately for a year and sporadically for 25, that this was not a studied politician's technique but the result of a genuine interest in human beings. He was generous to a degree of both his time and his resources, and rarely refused a call to go and lecture or demonstrate. There was thus scarcely a place in the world to which "C. L." had not been, complete with his cameras and with his laden brief-case full of papers and lantern-slides—always enthusiastic. In giving himself so lavishly to life the inevitable happened. A

coronary attack which might have made some men invalids for life merely exasperated him, and certainly exerted no check on his subsequent activities. He was last in England 18 months ago, and, when he came to dinner at my house, he characteristically thanked me most for the London fog with which his visit coincided—a new experience for him.

There were indeed few new experiences left for him to savour, for he had already seen so much, and time was getting short. It seemed so painfully clear that suddenly, hurrying on some air-field or dashing for some taxi, probably many thousands of miles from his home, the end would come. But, at the last, it was in his home, after a day spent working at his desk, that in the evening he sat forward in his arm-chair and gasped and died. And laryngology had lost one of its most remarkable and lovable characters, and many of us have lost a very great friend.

T. B. SHAW, M.B., Ch.B.

Surgeon Rear-Admiral T. B. Shaw, formerly professor of hygiene and director of medical studies at the Royal Naval Medical School, Greenwich, died at his home at Lee-on-the-Solent on January 17. He was 81 years of age.

Thomas Brown Shaw was born on May 19, 1879, the son of Thomas Shaw, J.P., of Kircubbin, Co. Down. He was educated at Campbell College, Belfast, and at Edinburgh University, where he graduated M.B., Ch.B. in 1901, being awarded the Allan fellowship in clinical medicine and surgery. In the same year he entered the Royal Navy as a staff surgeon, receiving promotion to surgeon commander in 1915, surgeon captain in 1926, and surgeon rear-admiral in 1934, the year in which he retired. He had an interesting and a varied career as a medical officer, taking part in the Somaliland campaign of 1904. In the early years of the first world war he served in H.M.S. *Falmouth* and was present at the battle of Heligoland Bight. From 1919 to 1921 he was fleet medical officer on the Africa station in H.M.S. *Birmingham*. He had had also a number of shore appointments, including that of professor of hygiene and director of medical studies at the Royal Naval Medical School, Greenwich, a post he held from 1923 to 1929. His *Textbook on Naval Hygiene* was published in 1929. At the time when "salvarsan" was first introduced for the treatment of syphilis he wrote several articles on the subject, one in this journal in 1912. After his retirement in 1936 he went to live in Lee-on-the-Solent, where he was a justice of the peace.

Admiral Shaw was twice married, first, in 1907, to Miss Ada K. Watters, who died in 1944, and by whom he had two sons, and, secondly, in 1945, to Mrs. Maude F. Milton, who survives him.

H. E. LEWIS, M.R.C.S., L.R.C.P.

Dr. H. E. Lewis, who was in general practice at Hampstead for over thirty years, died on December 10, 1960. He was 60 years of age.

Henry Emanuel Lewis was born in South Africa on October 6, 1900. He was the only child of parents who had settled there from Sweden, his father being one of the first to establish himself as a retail pharmacist in Johannesburg. Henry Lewis came to London in 1919 to enter Guy's Hospital as a medical student, qualified M.R.C.S., L.R.C.P. in 1925, and then held the appointments of house-surgeon, demonstrator of anatomy, and house-surgeon to the ear, nose, and throat department at Guy's. He entered general practice in 1927, joining an old-established partnership in Hampstead, where he remained until his death, except for the period of his service in the second world war, during which he attained the rank of major in the R.A.M.C. He volunteered at the outbreak of the war, and served principally at the Royal Herbert Hospital, Woolwich, latterly as a medical specialist. He returned to his practice in 1945. For some years he served with great personal satisfaction on the house committee of the Hampstead General Hospital. He always took a keen and sincere interest in his medical societies, including, and perhaps especially, the smallest and friendliest of them all, the Hampstead Medical Society. He was chairman of the Hampstead Division of the B.M.A. in 1955–6, and he had served on the private practitioners sub-committee at Headquarters since 1957.

Dr. Lewis was one of the most popular family doctors in London. A tower of strength to his patients, he impressed them all by his cheerfulness, sense of humour, and very genuine kindness.

He married Winifred Schonfield in 1927, and the harmony and ever-growing happiness of their relationship was always a joy to their friends and contributed in fullest measure to his supremely successful professional life, in which he gave friendship, comfort, healing, and his own singularly sweet and gentle personality to so many. To his widow and two sons we offer our sincere sympathy. The elder of his sons joined him in partnership in 1957, and the younger is a chartered accountant.

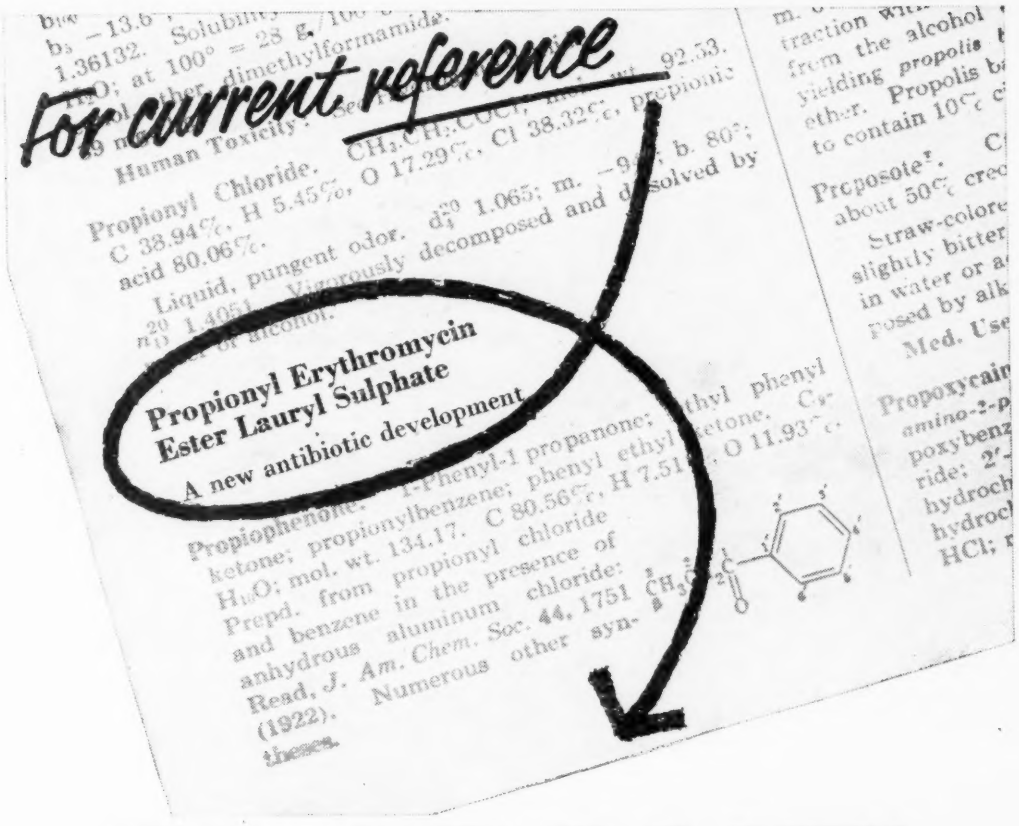
L. W. writes: With the death of Henry Lewis, we who were his neighbours and colleagues in Hampstead feel that we have lost a great friend. Henry was a kindly and generous man, an excellent host and an entertaining guest. Good natured and good humoured, he devoted his life to his patients, but his other interests were widespread. An evening at his house was an event to look forward to, as his circle of friends extended to all walks of life. He will be greatly missed, and the world is a sadder place without him.

B. C. BROOMHALL, F.R.C.S.

Mr. B. C. Broomhall, who was for many years a medical missionary in China, died at his home at Redlynch, near Salisbury, on January 2. He was 85 years of age.

Benjamin Charles Broomhall was born at Godalming, Surrey, on March 16, 1875, the youngest son of Benjamin Broomhall, of the China Inland Mission, an energetic protagonist in the anti-opium campaign. On leaving the City of London School he embarked on a business career, but soon realized that his vocation was to become a medical missionary in China, where the inland provinces were rapidly opening to intercourse with the outside world. With this in view he trained at the London Hospital and in 1900 qualified M.R.C.S., L.R.C.P. Two years later he was admitted a Fellow of the Royal College of Surgeons of England. After qualification he held the appointments of resident medical officer at the Mildmay Cottage Hospital, Bethnal Green, and house-surgeon at the London Hospital and at St. Mark's Hospital, London. He sailed for China in 1903 and settled in T'ai-Yuan-Fu, in the province of Shansi, in North China, where he hoped to carry on the work of Dr. A. E. Lovitt, one of the fifty missionaries massacred in T'ai-Yuan-Fu during the Boxer Rising.

He returned to England during the first world war, and was appointed to the Graylingwell Military Hospital, Chichester. Then followed a brief period in private practice at Garstang, Lancashire, where he was also medical officer of health for the rural district, before he went back to China in 1920, being stationed in Sianfu, in the province of Shensi. In recognition of his services to the Chinese people he was awarded the Order of the Double Dragon by the last Emperor of China in 1910, the Army and Navy Medal by the first President of the Republic of China in 1911, and the Medal of the Golden Grain by Yen-Shi-San, the governor of the model province of Shansi, in 1916. He finally left China in 1931. After being in private practice in Dulwich Village, London, from 1932 to 1939, he retired to Redlynch, where for several years he was occupied with war work and medical boards. A widower since 1952, Dr. Broomhall leaves two sons, one of whom is a medical missionary in the Philippines, and four daughters.



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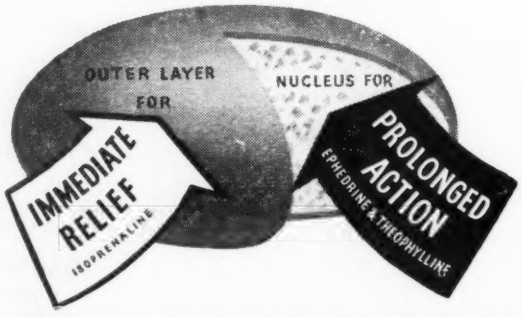

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Medical Notes in Parliament

HOSPITAL BUILDING

On January 25 Lord BALNIEL (Con., Hertford) asked the Minister of Health whether he was now in a position to make a further statement about the Government's hospital building programme.

Mr. ENOCH POWELL said yes, and added that he was introducing new methods to facilitate the planning and execution of an expanding programme. He had recently given guidance to hospital boards which would enable them for the first time to make long-term plans and had asked them to submit to him by May 31 their proposals for work to be started by 1970–1. The provisional figure for hospital capital expenditure in 1962–3, subject to the economic situation and the voting by Parliament of the necessary money, was £36m., compared with £31m. for next year, 1961–2. While no firm commitments could be entered into by the Government at this stage, and while the phasing cannot yet be determined, he had given regional hospital boards tentative planning limits based on an expenditure rising to about £50m. by 1965–6. He had asked that proposals for subsequent years should be prepared on an estimate of what was needed and practicable.

Hospital Board Schemes

Mr. Powell said he had also made regulations raising from £30,000 to £60,000 the maximum cost of individual projects which hospital boards could undertake without his prior authority. The first of a series of *Building Notes*,* giving guidance on hospital planning and on the design of hospital departments, had been published on January 23 and others would follow rapidly. These and an associated system of cost limits would simplify and expedite the planning of schemes by boards and their examination and approval by himself. In future, when a scheme was approved in principle, a starting-date would be given, so that hospital boards would be able to carry through the planning and execution in the knowledge that the project would not subsequently be held up.

New Hospitals and Departments

The Minister said he had asked hospital boards to complete the planning of a number of additional major schemes. These included new general hospitals at Basildon, Stevenage, and Abergavenny, and a long-stay geriatric hospital at Pontypridd, the first phase of a new hospital at Exeter, and the second phase of the new Wythenshawe Hospital in Manchester. Other large developments the Minister mentioned included a new ward block at Hammersmith Hospital and substantial redevelopment of the Royal Victoria Infirmary, Newcastle; a new radiotherapy centre in Bristol; and modernization and extension of the Royal Sussex County Hospital. There were also a number of large mental hospital schemes, which included a new hospital at Fulbourn for subnormal patients, various extensions in the Sheffield hospital region, and a medium-stay psychiatric unit as part of the new Fazakerley Hospital, Liverpool. (A more detailed account of the new programme is given at p. 354.) These schemes, said Mr. Powell, with those in previous announcements, completed the list of major schemes expected to be started by 1964–5. He intended to give specific starting-dates to all of them as soon as possible.

"HAILSHAM'S LAW"

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The "free drugs" pot is now bubbling fiercely. A Government spokesman has thrown tinder on the fire whose sparks are likely to be large and lasting. None other than Viscount HAILSHAM, Lord President of the Council, delivered a surprising pronouncement on this subject on the very day Parliament reassembled after the Christmas recess, January 24.

Lord AIREDALE asked the Government, innocently enough, if they had any date in mind for the implementation of the Conservative Party's 1949 election pledge, "We shall allow private patients to obtain, free of charge, drugs prescribed by their doctor on a parity with people in the State scheme." Lord NEWTON, the Government spokesman, gave him the official answer: "The Government have no date in mind at the present time for the introduction of legislation." Lord OGMORE saw the tinder lying at hand. "Is this," he asked, "another of the pledges unfulfilled by the Conservative Party?" Viscount HAILSHAM: "I do not think that is at all a fair question. Conservative Party promises are always kept. The reference was to the election manifesto of 1949, when we lost the election." Lord OGMORE: "Does the fact that the Conservative Party lost the election absolve them from all responsibility for their pledges?" Viscount HAILSHAM: "When you lose an election you are not bound by the promises in your election manifesto."

So was born Hailsham's law, not wholly new, but stark in its reflection on the private patients' hopes of getting free drugs. An annotation on this subject is published at p. 347.

LAWFUL TERMINATION OF PREGNANCY

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The Bill through which Mr. KENNETH ROBINSON (St. Pancras, North, Lab.) hopes to amend the law on the medical termination of pregnancy was published on January 27, and will come before the House as a private member's Bill on Friday, February 10. It starts off with the advantage of all-party support, for among its backers are Mr. P. Kirk, Miss J. Vickers, and Viscount Lambton, on the Conservative side. From his own benches Mr. Robinson has gathered the advocacy of Mr. D. Houghton, Dr. Barnett Stross, Mr. George Strauss, Sir Leslie Plummer, Mr. R. Jenkins, Mr. Scholefield Allen, Mr. J. Parker, and Mr. W. Sorensen.

The Bill would make it lawful, notwithstanding anything in Section 58 of the Offences against the Person Act, 1861 (which makes it a felony to administer drugs or use instruments to procure an abortion), for a registered medical practitioner to terminate pregnancy in good faith:

(*a*) for the purpose of preserving the life of the patient; or

(*b*) in the belief that there would be grave risk of serious injury to the patient's physical or mental health if she were left to give birth to and care for the child; or

(*c*) in the belief that there would be grave risk of the child being born grossly deformed or with a physical or mental abnormality which would be of a degree to require constant hospital treatment or special care throughout life; or

(*d*) in the belief that the patient became pregnant as the result of intercourse which was an offence under section one, five, ten, or eleven of the Sexual Offences Act, 1956, or that the patient is a person of unsound mind.

Clause 2 requires that such a termination of pregnancy shall require the concurring opinion or advice, which must be based upon a personal examination of the patient, of a second registered medical practitioner, and shall not be performed after the end of the thirteenth week of pregnancy.

Clause 3 declares the burden of proving that a termination of pregnancy performed by a registered medical practitioner with any necessary concurrence or advice of a second registered medical practitioner, was not performed in good faith for the purpose or in the belief specified in this Act, or within the time permitted for terminating pregnancy shall in any prosecution rest upon the Crown.

Nothing in the Bill is to affect the law relating to the requirement of consent to surgical operations. It does not extend to Northern Ireland.

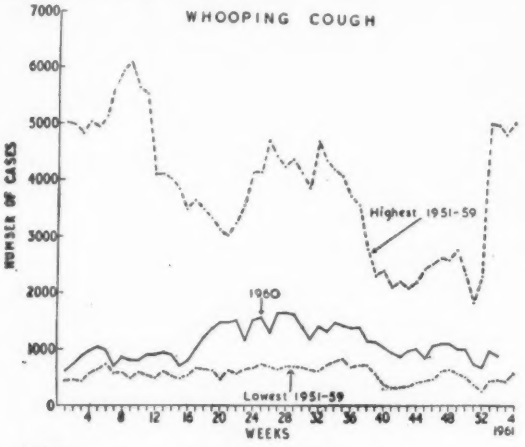
Mr. Robinson's main purpose is to bring statute law into line with case law as enunciated in *Rex v. Bourne, 1938*, in which it was held by the judge to be lawful to terminate a pregnancy for the sake of preserving the health as well as the life of the mother. Socially, he hopes it might do something to reduce the number of unskilled illegal abortions, estimated in 1939 to be between 44,000 and 65,000 a year.

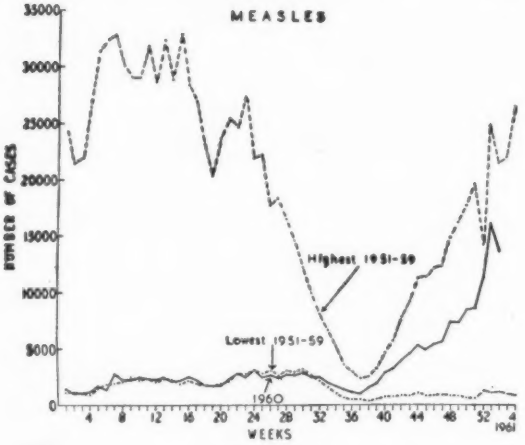
*See also p. 355.

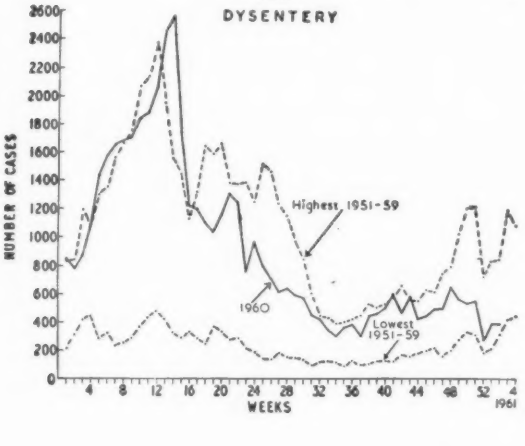
Vital Statistics

Graphs of Infectious Diseases

The graphs below show the uncorrected numbers of cases of certain diseases notified weekly in England and Wales. Highest and lowest figures reported in each week during the years 1951–9 are shown thus ------, the figures for 1960–1 thus ———. Except for the curves showing notifications in 1960–1, the graphs were prepared at the Department of Medical Statistics and Epidemiology, London School of Hygiene and Tropical Medicine.







Influenza

During the week ended January 21 the number of deaths from influenza in England and Wales amounted to 358, a rise of 45% on the previous week. Deaths from pneumonia (1,384) and from bronchitis (1,455) were higher by about 20% and 6% respectively. Most of the deaths were again in the Midland and North-Western Regions, where influenza continues to be prevalent. Further isolations of influenza virus A have been reported, mainly from the Midlands.

We are indebted to Dr. L. A. Pike, of Handsworth, Birmingham, for the following note about the type of influenza which has been prevalent there: "The pattern followed that of the Asian influenza epidemic in that the attack was usually sudden in onset, the patient feeling ill within a matter of half an hour or so. Initially there was a high temperature, up to 103° F., with profuse sweating and an intense pharyngeal inflammation with enlargement of the cervical glands. On the second or third day vomiting and diarrhoea were common, and the temperature gradually fell to normal by the fourth day. The epidemic seemed to affect young working adults of both sexes, and also the elderly. My impression was that those people who had had Asian influenza did not contract the recent infection. In a few cases pneumonia supervened, and this seemed to respond to usual antibiotic therapy. There were no deaths, or even 'near deaths,' in our practice of 8,500."

Infectious Diseases

Areas where numbers of notifications were high in the latest two weeks for which figures are available

	Week Ending Jan. 14	Week Ending Jan. 21
Measles		
Durham	676	**546**
Sunderland C.B.	107	**113**
Essex	624	**640**
Harlow U.D.	178	**210**
Hampshire	261	**368**
Gosport M.B.	96	**103**
Lancashire	2,047	**1,827**
Bolton C.B.	202	**187**
Liverpool C.B.	255	**228**
Manchester C.B.	234	**220**
London	1,310	**1,087**
Middlesex	468	**439**
Norfolk	364	**307**
Norwich C.B.	88	**106**
Oxfordshire	241	**175**
Oxford C.B.	191	**131**
Staffordshire	398	**381**
Wolverhampton C.B.	89	**105**
Suffolk	268	**214**
Ipswich C.B.	104	**114**
Warwickshire	604	**552**
Birmingham C.B.	298	**325**
Coventry C.B.	177	**170**
Yorkshire West Riding	1,046	**1,111**
Glamorganshire	606	**576**
Swansea C.B.	193	**204**
Dysentery		
Devonshire	12	**19**
Exeter C.B.	9	**18**
Essex	14	**33**
Wanstead and Woodford M.B.	2	**14**
Warwickshire	12	**33**
Coventry C.B.	8	**28**
Yorkshire West Riding	81	**91**
Leeds C.B.	23	**19**
Glasgow	57	**76**
Acute Poliomyelitis		
Warwickshire	0	**3**
Birmingham C.B.	0	**3**

INFECTIOUS DISEASES AND VITAL STATISTICS

Summary for British Isles for week ending **January 14** (No. 2) and corresponding week 1960.

Figures of *cases* are for the countries shown and London administrative county. Figures of *deaths* and *births* are for the whole of England and Wales (London included), London administrative county, the 17 principal towns in Scotland, the 10 principal towns in Northern Ireland, and the 14 principal towns in Eire.

A blank space denotes disease not notifiable or no return available.

The table is based on information supplied by the Registrars-General of England and Wales, Scotland, N. Ireland, and Eire, the Ministry of Health and Local Government of N. Ireland, and the Department of Health of Eire.

CASES	1961					1960				
	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire
Diphtheria	5	3	5	0	3	3	3	3	1	1
Dysentery	385	50	85	8	6	781	112	138	9	5
Encephalitis, acute	3	0		0		1	0		0	
Enteric fever:										
Typhoid	2	1	0	0		0	0	0	0	
Paratyphoid	4	0	1 (B)	0		2	0	0	0	
Food-poisoning	105	13	17	0		139	30	8	1	
Infective enteritis or diarrhoea under 2 years				19	14				7	11
Measles*	13,580	1310	408	129	314	1,049	17	10	14	75
Meningococcal infection	17	3	10	0	1	20	6	3	1	1
Ophthalmia neonatorum	18	2	5	0		16	0	0	0	
Pneumonia†	714	27	320	12	11	337	16	259	11	3
Poliomyelitis, acute:										
Paralytic	2	1	0	0		10	2	0	1	1
Non-paralytic	0	0	0			2	0	1		
Puerperal fever§	189	36	10	0	1	179	22	10	0	
Scarlet fever	362	13	51	17	10	932	35	68	21	21
Tuberculosis:										
Respiratory	416	38	29	9		446	50	50	17	
Non-respiratory	66	6	5	5		51	3	8	4	
Whooping-cough	887	48	107	12	25	740	61	235	10	66

DEATHS	1961					1960				
	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire
Diphtheria	1	1	0	0	0	0	0	0	0	0
Dysentery	0	0		0		3	0		0	
Encephalitis, acute		0			0		1			0
Enteric fever	0	0	0	0		0	0	0	0	
Infective enteritis or diarrhoea under 2 years	12	0	0	0	2	8	1	3	0	0
Influenza	246	3	1	0	10	35	1	0	0	0
Measles		1	0	0	0		0	0	0	0
Meningococcal infection		0	1				1	0		
Pneumonia	1,149	75	38	31	16	655	54	35	16	5
Poliomyelitis, acute	1	0		0	0	1	0		0	0
Scarlet fever		0	0	0	0		0	0	0	0
Tuberculosis:										
Respiratory	94	3	10	0	7	76	3	11	0	5
Non-respiratory		0		0	0		0	2	0	1
Whooping-cough	0	0	0	0	0	0	0	1	0	0
Deaths 0–1 year	394	34	49	12	16	310	30	45	5	26
Deaths (excluding stillbirths)	14,612	1003	760	176	296	11,472	924	646	161	203
LIVE BIRTHS	15,968	1296	1094	300	327	13,877	1223	1000	289	448
STILLBIRTHS	297	22	23			267	18	28		

* Measles not notifiable in Scotland, whence returns are approximate.
† Include primary and influenzal pneumonia.
§ Includes puerperal pyrexia.

Medical News

Cancer Research Experiment in Guernsey

A long-term experiment to determine the part played by endocrine imbalance in the development of breast cancer started in Guernsey on February 1. It is being organized by the Imperial Cancer Research Fund, and follows the detection by workers in the Fund's laboratories and in the department of surgery at Guy's Hospital of an abnormality in hormone excretion in some cases of very early breast cancer. About 5,000 women between the ages of 35 and 55 will be needed in the experiment, and they will be asked to supply one 24-hour specimen of urine on which a test of hormone excretion can be made. General practitioners collaborating in the experiment will notify the Fund if any of the volunteers later develop cancer. The island of Guernsey has been chosen because it provides the compact and relatively stable population which is necessary for an investigation expected to last for several years.

Official Physician to White House

President KENNEDY has appointed Dr. JANET GRAEME TRAVELL, associate professor of clinical pharmacology at Cornell University Medical College, as official physician to the White House. She has been his personal physician for many years and is the first woman to hold the White House appointment.

Associated Press

Dr. Travell, who was born in 1901, took her B.A. at Wellesley, Massachusetts, before qualifying in medicine at Cornell University Medical College, in New York City, in 1926. She was house-physician at New York Hospital from 1927 to 1929, and Fellow of the Bellevue Hospital from 1929 to 1930. She then returned to her old college and was for 17 years instructor in pharmacology there. In 1947 she was appointed assistant professor of clinical pharmacology at Cornell, becoming associate professor in 1951. Dr. Travell, who is married, will be giving up her New York practice to join the White House staff.

British Medical Students' Trust, Travel Grants

Members of the British Medical Students' Association who intend travelling abroad this year on any pursuit of a medical nature and who require financial assistance are invited to apply for a grant from the British Medical Students' Trust. Application forms may be obtained from any B.M.S.A. representative or from the Trustees, British Medical Students' Trust, B.M.A. House, Tavistock Square, London W.C.1. The completed form must be submitted by March 31.

National Research Development Corporation

In its annual report for the year ending June 30, 1960, the National Research Development Corporation lists among its major revenue-earning inventions cephalosporin C, tri-iodothyronine, anti-thyroid compounds, hecogenin, and anti-cancer compounds. Development projects either in progress or started during the year include work on aldosterone, Bush chromatographic equipment, cephalosporins, interferon—which is reported on for the first time—and a pharmacological screening project. Referring to interferon, the Corporation says that "it is participating in arrangements for co-operative technical collaboration between the Medical Research Council and members of the United Kingdom pharmaceutical industry to secure development, and in arrangements for the commercial exploitation of the results of the collaboration."

Record Drug Exports

Exports of British drugs and medicines reached a record figure of over £44m. in 1960, an increase of £3.4m. over 1959. Well over one-quarter of the pharmaceutical industry's production is exported. Figures published by the Board of Trade show that Australia (£4m.), Nigeria (£2.8m.), Pakistan (£2.4m.), the Irish Republic (£2m.), and New Zealand (£2m.) were the leading importers, followed by Canada, South Africa, and the United States (each £1.5m.), Ghana (£1.4m.), India (£1.3m.), and Burma (£1m.). Exports to the Common Market countries (excluding Luxembourg) were £3.4m. as compared with £2.7m. in 1959. Over half the export trade was accounted for by miscellaneous proprietary medicines (£12.8m.), antibiotics (£8.6m.), and vitamins (£2.7m.). Sales of over £1m. were recorded for alkaloids, antimalarial drugs, aspirin, sulphonamides, and hormones; and of over £500,000 for antihistaminics, barbiturates, and insulin.

Orthopaedic Rehabilitation in Leprosy

A talk about the work being done for patients suffering from leprosy at Karigiri, South India, was given by Professor P. W. BRAND, professor of orthopaedic surgery at the Vellore Christian Medical College and director of orthopaedic work for the Mission to Lepers, in the Great Hall at B.M.A. House on January 25. Mr. H. J. SEDDON was in the chair. The talk, which was illustrated by slides showing conditions arising as complications of leprosy, was attended by many medical and nursing students as well as members of societies interested in work for those suffering from leprosy. Professor Brand has said that 13 years ago there was not one reconstructive surgeon working on leprosy deformities anywhere in the world. Now there might be a dozen—one for each million patients.

Waiting in Scottish Out-patient Departments

The Department of Health for Scotland has sent a memorandum to Regional Hospital Boards asking them to improve out-patient facilities in Scottish hospitals, and to make greater use of work study in this field. The Boards are asked to consider at regular intervals reports on the working of their out-patient departments. The memorandum recommends that if less than 75% of patients are seen within half an hour the reasons should be investigated, and says, "In any clinic where there is not an appointment system the reason for this should be critically examined, and the Board should allow the situation to continue only if there are compelling reasons. Appointment systems do not automatically ensure efficiency, but they are a big step towards it."

Colonial Development Grants in 1960

Grants and loans approved under the Colonial Development and Welfare Act during 1960 amounted to £40,612,353, compared with £27,850,204 in 1959. The 1960 total included £2,770,221 for medical and health services.

North of England Obstetrical and Gynaecological Society

The following have been elected office bearers for the year: *president*, Mr. L. B. PATRICK; *vice-presidents*, Dr. K. V. BAILEY (Manchester), Dr. W. J. CLANCEY (Sheffield), Miss G. KAY (Leeds), Mr. D. FLETT SMITH (Newcastle), Mr. C. H. WALSH (Liverpool); *honorary treasurer*, Mr. T. B. FITZGERALD; *honorary general secretary*, Mr. T. SMITH; *honorary reporting secretary*, Miss U. M. LISTER.

Change of Address

The Greater London Red Cross Blood Transfusion Service has moved from 324 Seven Sisters Road, London N.4, to 4 St. Andrew's Place, London N.W.1. (HUNter 2579/3120.)

"On Call to a Nation"

The film "On Call to a Nation"—a 75-minute study of the Health Service as seen by doctors which was first transmitted on B.B.C. television in October, 1958—has been acquired in 16-millimetre form by the Central Office of Information. It can be hired (for £2 a day until April, when the charge will be £2 12s.) from the Central Film Library, Government Building, Bromyard Avenue, Acton, London W.3.

"Abstracts of Human Developmental Biology"

Abstracts of Human Developmental Biology is a new monthly journal published by Excerpta Medica with the aid of a grant from the United States Public Health Service. It will contain information on the problems of normal and abnormal development, reproduction, and transplantation. The subscription rate is £6 18s. a year, and inquiries should be sent to Excerpta Medica, 67c New Bond St., London W.1.

"Biophysical Journal"

A new bi-monthly journal, *Biophysical Journal*, is being published for the Biophysical Society (U.S.A.) by the Rockefeller Institute Press. The subscription rate is $8 for the first volume (eight issues) and $6 a year thereafter (six issues). Inquiries should be sent to the Rockefeller Institute Press, New York 21, New York.

"Family Doctor"

The February issue of *Family Doctor* is now on sale at a cost of 1s. 6d. It includes articles on mutual aid for the hard of hearing by Mr. S. F. L. DAHNE, on premature babies by Mr. ELLIOT PHILIPP, and on the School Health Service by Dr. ALLAN WITHNELL.

People in the News

Sir ROBERT PLATT, P.R.C.P., has been elected an honorary Fellow of the American College of Physicians.

As a tribute to Emeritus Professor R. J. A. BERRY, late professor of anatomy and dean of the faculty of medicine at Melbourne University, the University is to name the main anatomical lecture theatre which he designed and created "The Berry Theatre."

Dr. E. M. POULTON, maternal and child welfare adviser to W.H.O., is among the W.H.O. doctors who have gone to the Kasai province of the Congo to combat the kwashiorkor epidemic there.

Dr. J. S. HARRIS, physician superintendent at Claybury Hospital, Woodford Green, has been appointed one of the medical advisers of the Lord Chancellor, Lord KILMUIR.

COMING EVENTS

British Institute of Radiology.—Meeting with short papers on work in progress on radiobiology, February 17, 2 p.m., Institute's Reid-Knox Hall, 32 Welbeck Street, London W.1. Details from that address.

"Scientific Basis of Medicine": Change of Date.—Dr. G. P. LEWIS's lecture in this series, "The Role of Bradykinin in the Control of Local Blood Flow," has been changed from February 16 to March 7, 5.30 p.m., at the London School of Hygiene.

Nutrition Society.—Symposium, "The Place of Food Science and Technology in the Campaign Against Malnutrition," March 18, 10.30 a.m., London School of Hygiene and Tropical Medicine, London W.C.1. Details from Miss D. F. HOLLINGSWORTH, c/o Ministry of Agriculture, Fisheries and Food, Great Westminster House, Horseferry Road, London S.W.1.

International Society for Clinical and Experimental Hypnosis, British National Division.—Presidential address, Dr. J. A. HADFIELD, "What is Hypnosis?" February 6, 8 p.m., Royal Society of Medicine, 1 Wimpole Street, London, W.1.

Scottish Society of Anaesthetists.—Scientific session: "Muscle Relaxants and Abnormal Responses," February 18, 2.15 p.m., Engineering South Building, Glasgow University. Details from Dr. H. Y. WISHART, 53 Lauderdale Gardens, Glasgow W.2.

Society for Analytical Chemistry, Physical Methods Group.—Meeting, "Physical Methods of Analysis Used in Medical Research," February 28, 6 p.m., Cuthbert Wallace Lecture Room, Royal College of Surgeons of England, Lincoln's Inn Fields, London W.C.2. Visitors welcome.

Midland Thoracic Society.—Annual dinner, March 4, 7 p.m., Birmingham Medical Institute, 36 Harborne Road, Edgbaston, Birmingham 15.

2nd Ruscoe Clark Memorial Lecture.—Sir HARRY PLATT, "The Care of the Injured," April 25, 6 p.m., Royal College of Surgeons of England. Admission free without ticket.

Royal Society of Health.—Health congress, Blackpool, April 24–28. Details from the Society, 90 Buckingham Palace Road, London S.W.1.

5th Congress of International Academy of Legal and Social Medicine.—Vienna, May 22–27. Details from Congress Secretariat, 2 Sensengasse, Vienna 9, Austria.

European Meeting: "Tumour Biology."—Warsaw, May 22–27. Organized by Cancer Research Commission of International Union against Cancer, and sponsored by Polish Oncological Society and Medical Department of Polish Academy of Sciences. Details from Professor Dr. O. MÜHLBOCK, 108 Sarphatistrat, Amsterdam, Holland.

3rd World Congress of Psychiatry.—Montreal, Canada, June 4–10, 1961, held at the invitation of McGill University and under the auspices of the Canadian Psychiatric Association. Details from General Secretary, 3rd World Congress of Psychiatry, 1025 Pine Avenue West, Montreal 2, P.Q., Canada.

7th International Life Assurance Medicine Congress.—Lisbon, June 15–18. Details from Dr. G. C. PETHER, 3 Lombard Street, London E.C.3, or Dr. I. D. MACDONALD, 7 Princes Street, London E.C.2.

NEW ISSUES OF SPECIALIST JOURNALS

The journals listed below are obtainable from the Publishing Manager, B.M.A. House, Tavistock Square, London W.C.1.

BRITISH JOURNAL OF INDUSTRIAL MEDICINE

Background to Byssinosis in Ulster. James A. Smiley.
Pulmonary Fibrosis in Workers Exposed to Finely Powdered Aluminium. John Mitchell, G. B. Manning, M. Molyneux, and Ronald E. Lane.
Pulmonary Fibrosis in a Worker Using an Aluminium Powder. J. Warren Jordan.
Bronchitis—Sickness Absence in London Transport. C. J. Cornwall and P. A. B. Raffle.
The Causes of Death in Iron and Steel Workers (Non-foundry). A. I. G. McLaughlin and H. E. Harding.
A Study of Aspergillus Spores in the Atmosphere of a Modern Mill. F. C. Stallybrass.
Christmas Disease and Coal-mining. C. B. Kerr.
Methyl Bromide Poisoning. E. M. Rathus and P. J. Landy.
Coproporphyrinuria in Groups of Workers as an Index of Inorganic Lead Absorption. R. L. Zielhuis.
Erosion of the Teeth Due to Sulphuric Acid in the Battery Industry. D. Malcolm and E. Paul.
Observations on the Urinary Protein of Men Exposed to Cadmium Dust and Fume. J. C. Smith, Agnes R. Wells, and J. E. Kench.
Miscellanea.
Book Reviews.

Volume 18, No. 1. (Quarterly; £3 annually.)

SOCIETIES AND LECTURES

A fee is charged or a ticket is required for attending lectures marked ●. Application should be made first to the institution concerned.

Monday, February 6

DENTAL AND MEDICAL SOCIETY FOR THE STUDY OF HYPNOSIS.—At Royal Society of Medicine, 8 p.m., symposium.
MARLBOROUGH DAY HOSPITAL.—8.15 p.m., Dr. Philip Hopkins: Health Services in the U.S.S.R. A coloured ciné film will follow.
POSTGRADUATE MEDICAL SCHOOL OF LONDON.—4 p.m., Dr. Brian Ackner: Psychiatric Aspects of the Menopause.

Tuesday, February 7

BELMONT HOSPITAL CLINICAL SOCIETY.—8 p.m., Dr. T. F. Main: Mothers with Children in a Psychiatric Hospital.
BRITISH POSTGRADUATE MEDICAL FEDERATION.—At London School of Hygiene and Tropical Medicine, 5.30 p.m., Professor R. Knox: Contrasting Patterns of Drug Resistance in Tubercle Bacilli and Staphylococci.
INSTITUTE OF DERMATOLOGY.—5.30 p.m., Dr. I. Muende: Cutaneous Granulomata, Excluding Tuberculosis and Syphilis.
ROYAL ARMY MEDICAL COLLEGE.—5 p.m., Professor C. H. Stuart-Harris: Poliomyelitis.
ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 p.m., Milroy Lecture by Dr. H. G. Miller: Accident Neurosis.
ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 p.m., Erasmus Wilson Demonstration by Dr. L. Bitensky: Cirrhosis of the Liver.
ST. MARY'S HOSPITAL MEDICAL SCHOOL.—At Lecture Theatre, Wright-Fleming Institute, 5 p.m., Miss Josephine Barnes: Genital Tuberculosis.
WEST END HOSPITAL FOR NEUROLOGY AND NEUROSURGERY.—5.30 p.m., Mr. J. Minton: Ocular Manifestations in Clinical Neurology (Part I).

Wednesday, February 8

CAMBRIDGE SOCIETY FOR THE STUDY OF COMPARATIVE MEDICINE.—At Lecture Theatre, School of Veterinary Medicine, Madingley Road, Cambridge, 8.30 p.m., discussion to be opened by Mr. R. W. Butler, Dr. M. Yealland, Mr. S. W. Douglas, and Colonel J. Hickman: Disorders of the Intervertebral Disc.
EUGENICS SOCIETY.—At 26 Portland Place, London W., 5 p.m., Galton Lecture by Sir Robert Platt, P.R.C.P.: Inherited Disease in Man.
INSTITUTE OF DERMATOLOGY.—5.30 p.m., Dr. A. Tickner: Collagen and Ground Substance.
INSTITUTE OF DISEASES OF THE CHEST.—5 p.m., Mr. J. R. Belcher: Restenosis of the Mitral Valve.
INSTITUTE OF UROLOGY.—4.30 for 5 p.m., Dr. S. B. Osborn: Radiotherapy in Uroiogy.
LISTERIAN SOCIETY.—At Lecture Theatre, King's College Hospital Medical School, 8.30 p.m., Dr. Glyn Daniel, Ph.D.
MANCHESTER MEDICAL SOCIETY: SECTION OF PATHOLOGY.—At Manchester Medical School (Large Anatomy Theatre), 5 p.m., Presidential address by Dr. G. B. Manning: Aspects of Poisoning.
POSTGRADUATE MEDICAL SCHOOL OF LONDON.—2 p.m., Dr. J. Poole: Clots and Thrombi.
ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—5.15 p.m., Dr. C. H. Burnett (North Carolina): Vitamin D Resistant Rickets.
YORKSHIRE SOCIETY OF ANAESTHETISTS.—At General Infirmary at Leeds, 8.15 p.m., Dr. T. N. P. Wilton: Anaesthesia for Bronchoscopy.

Thursday, February 9

ALFRED ADLER MEDICAL SOCIETY.—At 11 Chandos Street, W., 8 p.m., Dr. Charles Bard: Personal Factors in the Causation of Industrial Accidents.
BIRMINGHAM MEDICAL INSTITUTE: SECTION OF PSYCHIATRY.—8 p.m., Dr. Denis Leigh: Amnesia as a Criminal Defence.
BRITISH POSTGRADUATE MEDICAL FEDERATION.—At London School of Hygiene and Tropical Medicine, 5.30 p.m., Dr. L. H. Collier: Trachoma and Inclusion Blennorrhoea.
HUNTERIAN SOCIETY.—At Savoy Hotel annual dinner.
INSTITUTE OF DERMATOLOGY.—5.30 p.m., Mr. A. J. King: Skin Manifestations of Treponematoses II.
LIVERPOOL MEDICAL INSTITUTION.—Afternoon clinical meeting at Royal Southern Hospital.
POSTGRADUATE MEDICAL SCHOOL OF LONDON.—4 p.m., Professor Ray Farquharson: Aspects of Pituitary Disorders.
ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 p.m., Milroy Lecture by Dr. H. G. Miller: Accident Neurosis.
ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 p.m., Arris and Gale Lecture by Mr. P. H. Golding-Wood: Autonomic Surgery of the Ear, Nose and Throat.
ST. ANDREWS UNIVERSITY.—At Physiology Department Lecture Theatre, 5 p.m., Professor A. Macdonald: The Adenoviruses.
ST. GEORGE'S HOSPITAL MEDICAL SCHOOL.—5 p.m., Dr. Denis Williams: postgraduate demonstration in neurology.

Friday, February 10

BELFAST: ROYAL VICTORIA HOSPITAL.—At Institute of Clinical Science, Grosvenor Road, Belfast, 4.30 p.m., Dixon Lecture by Dr. I. S. Ravdin: Chemotherapy—As a Cure for Cancer.
● INSTITUTE OF DERMATOLOGY.—5.30 p.m., Dr. R. H. Marten: clinical demonstration.
INSTITUTE OF DISEASES OF THE CHEST.—5 p.m., clinical demonstration by Dr. K. M. Citron.
INSTITUTE OF LARYNGOLOGY AND OTOLOGY.—5.30 p.m., Mr. William McKenzie: Surgery of the Stapes.
POSTGRADUATE MEDICAL SCHOOL OF LONDON.—(1) 10 a.m., Dr. A. G. Hardy: Management of Spinal Injuries (2) 4 p.m., Dr. E. N. Rowlands: Some Disorders of Gastro-intestinal Motility.

APPOINTMENTS

BIRMINGHAM REGIONAL HOSPITAL BOARD.—W. A. Ker, M.R.C.S., L.R.C.P., D.P.M., Whole-time Consultant Psychiatrist, to Mid-Staffs Mental Group (with duties also in Wolverhampton Group); W. F. Rogers, M.D., Whole-time Consultant Physician with experience in Geriatrics to Stoke-on-Trent Group of Hospitals; W. S. A. Allan, M.B., Ch.B., M.R.C.P.Ed., Whole-time Consultant Pathologist to Wolverhampton Group of Hospitals; G. C. Kanjilal, M.B., B.S., D.P.M., Whole-time Consultant Psychiatrist and Deputy Medical Superintendent to North Staffs (Mental) Group of Hospitals; R. S. Cowie, F.R.C.S.Ed., F.R.F.P.S., Part-time Consultant Orthopaedic Surgeon to Shrewsbury group of hospitals and Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry.

EAST ANGLIAN REGIONAL HOSPITAL BOARD.—R. H. Champion, M.B., B.Chir., M.R.C.P., Consultant Dermatologist, United Cambridge Hospitals and East Anglian Regional Hospital Board; M. Wheatley Price, B.M., B.Ch., Registrar in Psychiatry Fulbourn and Addenbrooke's Hospitals; G. Banerjee, M.B., B.S., Orthopaedic Registrar, Peterborough Group of Hospitals; A. G. Kirk, M.R.C.S., L.R.C.P., Registrar in Psychiatry, St. Andrew's Hospital, Norwich.

HARRISON, RAYMOND, M.B., Ch.B., D.O., Assistant Ophthalmic Surgeon, Manhattan Eye, Ear, and Throat Hospital, New York.

BIRTHS, MARRIAGES, AND DEATHS

DEATHS

Brailsford.—On January 28, 1961, at Queen Elizabeth Hospital, Birmingham, James Frederick Brailsford, M.D., F.R.C.P., of 20 Highfield Road, Edgbaston, Birmingham, aged 72.
Dick.—On January 11, 1961, at West Park House, Wick, Caithness, George Dick, M.B., Ch.B.
Grace.—On January 4, 1961, in a London hospital, John Johnston Grace, M.B., F.R.C.S.
Hakim.—On January 5, 1961, Mohammad Sherif Hakim, M.B., B.S., D.P.H., D.T.M., of 126 Norwood Road, London S.E.
Hermitte.—On January 9, 1961, at 20 Richmond Mansions, 250 Old Brompton Road, London S.W., Louis Constant Daniel Hermitte, M.B. Ch.B., D.T.M.&H., of Seychelles Islands.
Horan.—On January 5, 1961, at Ashfield, Chepstow, Mon., Maurice Horan, F.R.C.S.Ed.
Lindfield.—On January 9, 1961, at Guy's Hospital, London S.E., Robert Ironside Lindfield, F.R.C.S.Ed.
McGiffin.—On January 8, 1961, at Exmouth, Robert Hunter McGiffin, O.B.E., M.B., B.Ch., Surgeon Captain, R.N., retired, of 20 Archery Square, Walmer, Kent.
Stephenson.—On December 30, 1960, Cyril Ernest Rennie Stephenson, M.R.C.S., L.R.C.P., of 43 Parkway Drive, and 8 Strouden Avenue, Bournemouth, Hants.
Watson.—On January 3, 1961, at Stirling, William Linton Watson, O.B.E., L.R.C.P.&S.Ed., L.R.F.P.S., L.D.S., Colonel, I.M.S., retired, of Kilmore, Bridge of Allan, Stirlingshire, aged 77.

Any Questions ?

We publish below a selection of those questions and answers which seem of general interest. It is regretted that it is not possible to supply answers to all questions submitted.

Ganglion-blocking Drugs and Impotence

Q.—*A man aged 52 with severe hypertension was stabilized first on bretylium tosylate and now on hydrochlorothiazide (25 mg., b.d.), reserpine (0.25 mg., t.d.s.), and mecamylamine hydrochloride (5 mg., b.d.), but with each treatment he has had complete loss of libido. Is this usual, and can anything be done for it?*

A.—It is clear that this patient's severe hypertension is very effectively controlled by the combination of hydrochlorothiazide, reserpine, and mecamylamine, but, as is so often the case, this result has been achieved only at the expense of an undesirable side-effect of the treatment. Impotence is a common side-effect of all the ganglion-blocking drugs which are used for the treatment of hypertension, and this may be accompanied by loss of libido. Nothing short of stopping the ganglion-blocking agent can be done about this; it is part of the price that the patient has to pay for adequate control of a potentially lethal disease.

Primary Vaccination and Allergic Eczema

Q.—*What risks are involved in primarily vaccinating for smallpox a patient aged 30 who has had allergic eczema and asthma since childhood? The patient is never free from some degree of eczema, and in addition she gets severe generalized urticaria when she inadvertently eats fish of any kind.*

A.—Unless there is a serious necessity for the patient to be vaccinated, vaccination should not be undertaken, because of the risk of imposing a secondary viral infection, which may proceed to a grave systemic infection, upon the eczema. Quite apart from this, it is not very desirable to perform a primary vaccination at this age, because of a likelihood of a severe reaction, local and systemic. If it must be done, the part should be occluded with a sterile dressing under a "viscopaste" bandage for two weeks to reduce the risk of infection of the eczema by rubbing and scratching.

Serum Transaminase and Toxic Hepatitis

Q.—*It is said that the estimation of serum glutamic oxaloacetic transaminase is the most sensitive index of liver function in a patient being treated with pyrazinamide.[1] Does that imply that serial estimations of S.G.O.T. alone will be sufficient and other liver function tests such as serum alkaline phosphatase and turbidity tests are superfluous? May the latter tests be altogether omitted in such a patient?*

A.—There seems little doubt that estimations of the serum transaminase give the earliest warnings of toxic hepatitis. Wróblewski[2] claims that the level of glutamic pyruvic transaminase rises higher than that of glutamic oxaloacetic transaminase in toxic hepatitis. In the prodromal stages of serum and infectious hepatitis, rises in both enzymes precede significant changes in the standard tests. Hanger[3] recommends periodic transaminase estimations when a potentially hepatotoxic drug is being given. Possibly the cephalin flocculation and thymol turbidity tests are the nearest of the older tests in sensitivity but do not give such early warning.

Small[4] recommends transaminase estimations at fortnightly or, better, weekly intervals, when pyrazinamide is being given. Little else has been published concerning transaminase estimations when pyrazinamide is given, but it seems probable that routine assessment of the levels of these enzymes in the serum should provide the earliest warning of hepatitis, as it has done with other drugs. Till further evidence is published, it would be sensible to continue the older tests as well, especially the cephalin flocculation test. In my limited experience, changes in the transaminase level have preceded all other empirical and clinical signs of pyrazinamide hepatitis and have quickly become normal when the drug has been stopped. After an interval the drug can often be started again without trouble. Estimations should be at least fortnightly and preferably weekly during the first six to eight months of treatment, after which the danger of hepatitis appears to be remote.

Recent and authoritative short reviews of the transaminase tests have appeared in *Medical Clinics of North America*.[2 3] Small[4] has discussed the problem of pyrazinamide toxicity and its early detection.

REFERENCES

1 *Brit. med. J.*, 1960, **2**, 597.
2 Wróblewski, F., *Med. Clin. N. Amer.*, 1960, **44**, 699.
3 Hanger, F. M., *Ibid.*, 1960, **44**, 681.
4 Small, M. J., *Dis. Chest*, 1959, **36**, 265.

Ribonucleic Acid Tablets

Q.—*Is there any reason to suppose that ribonucleic acid, taken in the form of tablets, would be of any value in the treatment of senile mental deterioration due to cerebral arterial degeneration?*

A.—Although the importance of nucleic acids in cell metabolism, particularly with regard to the synthesis of proteins and the transmission of hereditary characteristics, is now well established, there is no convincing evidence that ribonucleic acid is of therapeutic value in mental deterioration or in any other clinical condition.

Trapped Placenta After Ergometrine

Q.—*When the placenta becomes trapped in the uterus after the use of ergometrine, but there is no bleeding, should the placenta be removed manually under general anaesthesia immediately or should one wait until the effect of the drug has worn off to see whether the placenta can be expressed or needs manual removal?*

A.—If the ergometrine has been given at the end of the second stage prophylactically, because of a previous post-partum haemorrhage or of the necessity for manual removal of the placenta having arisen in a previous labour, one should proceed in the circumstances named to remove this placenta manually at once, for adequate general anaesthesia will allow the hand to pass through the cervix. If, however, ergometrine is being given as a routine measure at the close of the second stage, then there is no unanimity on the point in question. Some insist that here, too, it is best to proceed immediately to manual removal, but others prefer to wait for the effect of the ergometrine to wear off, provided that there is no bleeding and that the placenta has descended into the lower segment, as shown by there being no retreat of the cord within the vagina when a hand is dipped supra-pubically and pressed upwards.

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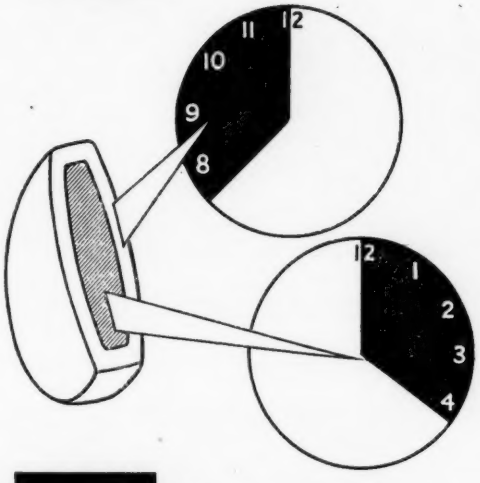

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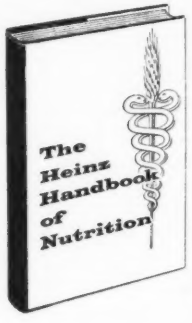

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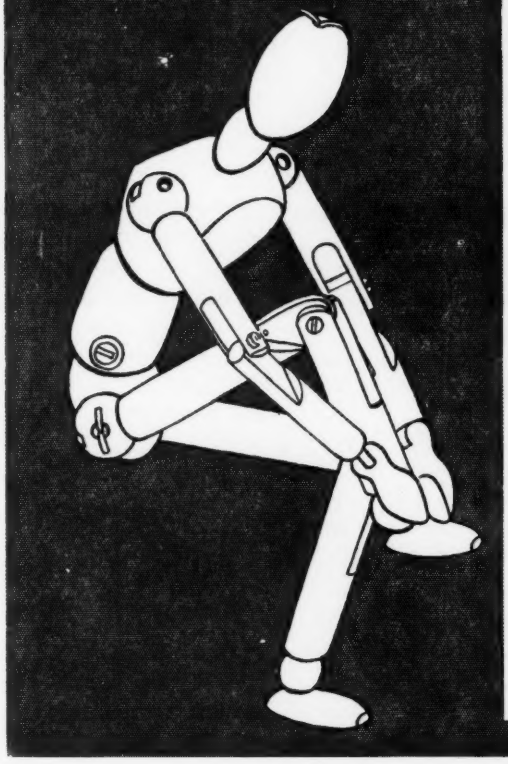

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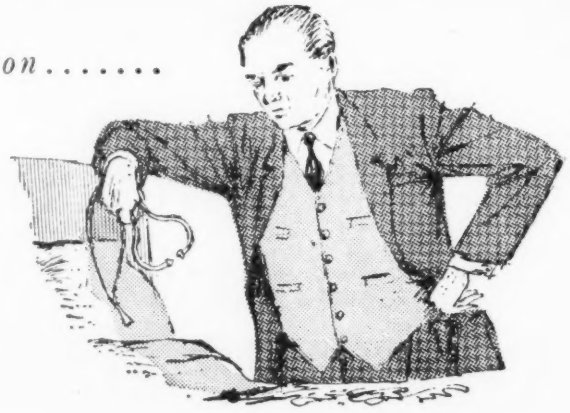

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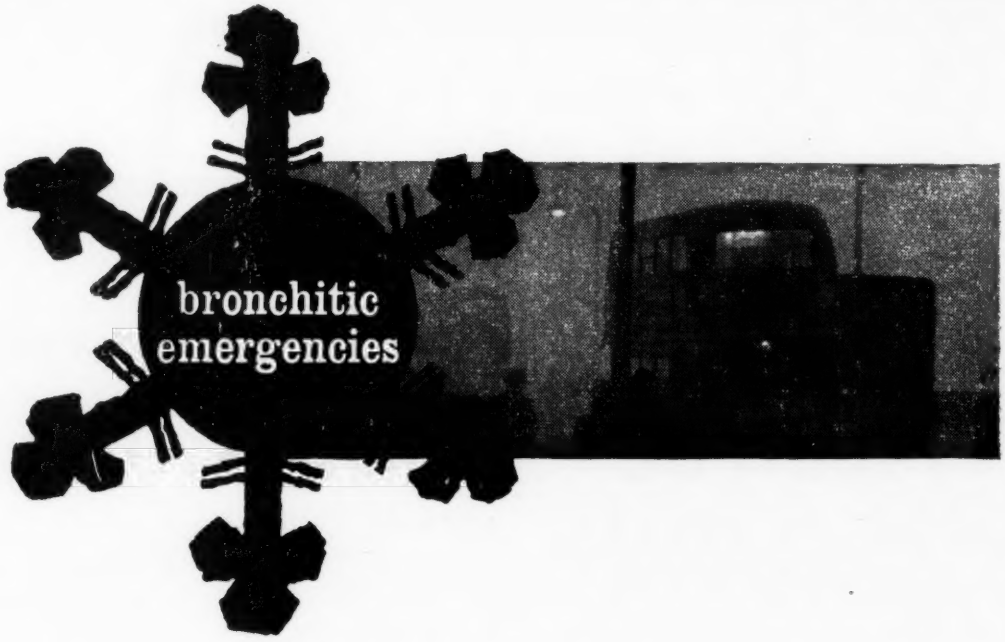

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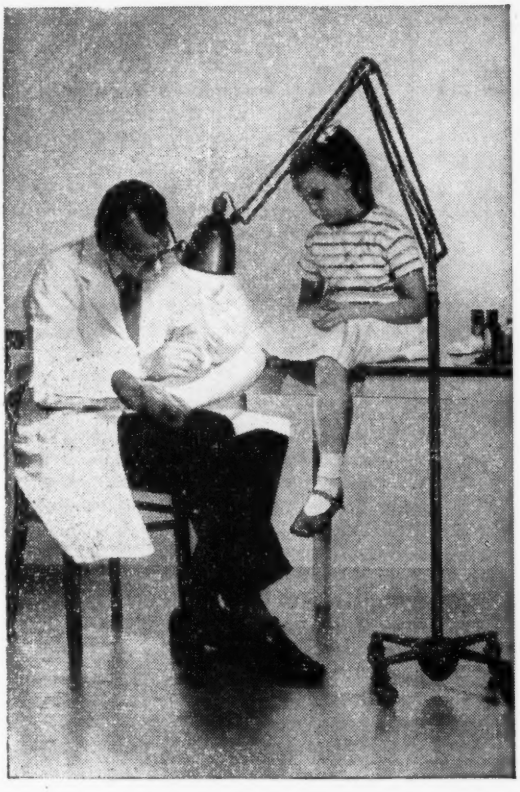

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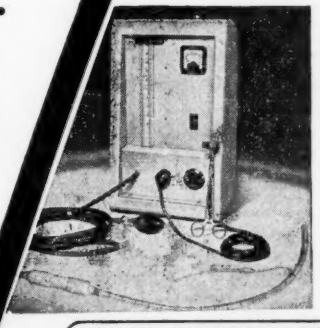

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£825 per annum for the third and any subsequent posts held; deduction of £165 per annum for compulsory residence or £195 per annum for voluntary residence;

provided that the employing authority (subject in the case of a Hospital Management Committee to the consent of the Regional Hospital Board) shall have discretion to determine that the remuneration of any officer holding his first post in the National Health Service as a House Officer shall be £750 per annum if they are satisfied that the officer has held at least one hospital post outside, of not less than six months' duration, involving clinical responsibilities equivalent to those of house posts in the National Health Service and supervised by appropriate specialist staff; provided further that where a House Officer has previously held two such outside posts the employing authority (subject in the case of a Hospital Management Committee to the consent of the Regional Hospital Board) shall have discretion to determine that his remuneration shall be £825 per annum. Any House Officer who on first appointment is paid at the appropriate rate to the second or third post held in accordance with the above provision shall be paid at the third post rate for any subsequent appointments in this grade.

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Any advertisement appearing in this issue for posts in the hospital service which quote the rates of salary and other conditions which obtained before the recent agreement are published on the assumption that the employing authorities will in due course make the necessary adjustments. (17/10/60)

CLASSIFICATION

and order of appearance

Practices
Partnerships
Assistantships
Trainee General Practitioners
Locums
Situations (Medical)

APPOINTMENTS

including pre-registration under appropriate specialty headings, as follow:

Anaesthetics
Blood Transfusion
Casualty
Chest and Tb.
Dental
Dermatology
Geriatrics
Infectious Diseases
Medicine
Neurology
Neurosurgery
Obstetrics and Gynaecology
Ophthalmology
Orthopaedics
Otolaryngology
Paediatrics
Pathology
Physical Medicine
Plastic Surgery
Psychiatry
Radiology
Radiotherapy
Rheumatology
Surgery
Thoracic Surgery
Urology
Venereology

in the following order:
Consultants, Assistant Physicians and Surgeons, Registrars, Clinical Assistants, J.H.M.O.s, Senior House Officers, House Officers.

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Commercial and Industrial
Republic of Ireland
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Scholarships
Personal
Notices
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Berkshire. Good training available, rural dispensing practice. Pathological, x-ray, maternity, facilities local hospitals. Part-furnished house. N.H.S. scale.—Dr. Gillman, Kintbury, near Newbury.

Cambridgeshire. Town and country practice, five partners, central surgery with considerable ancillary help. Good flat available. Maximum salary and allowances.—Drs. Groom and Partners, 7 North Brink, Wisbech.

Cheltenham. Trainee required. Car owner preferred. Three partners, old-established group practice. Modern central surgery, two receptionists. Ample leisure. Maximum salary and allowances. Furnished flat in good residential district available.—Box T.1518, B.M.J.

Croydon. Vacancy end March with experienced trainer. Unfurnished maisonette available. Car necessary.—Box T.1464, B.M.J.

Essex partnership, cottage hospital, midwifery, with experience of three trainees, is prepared to consider another, starting spring or early summer. Cambridge or London graduate preferred.—Box T.1501, B.M.J.

Harrow. Male, live out, own car. Partnership of two. Two local hospitals. Excellent rota. Salary £1,150 per annum, plus £200 car allowance.—'Phone WOR 1136.

Isle of Wight. Partnership three. Seaside town. Generous free time. Accommodation available, married or single. Car required. Maximum salary.—Dr. Harrison, Tel. Sandown 51.

London S.W.1. Vacancy for a Trainee. Partnership of three, with full ancillary help and excellent laboratory and hospital facilities. Full Ministry scale salary and allowances. Car advisable, but not essential.—Dr. Lawson, 40 Tachbrook Street, S.W.1.

Midlands. Live out (part-furnished house available). Maximum salary and allowances. Rota. Auxiliary help. Exceptionally wide facilities and experience offered.—Box T.1291, B.M.J.

Required, Trainee, London S.E. Salary £1,150 per annum, plus car allowance £200. Furnished accommodation suitable for married couple available.—Box T.1505, B.M.J.

Trainee, preferably male, single.—Dr. A. J. Macleod, Lochmaddy, Isle of North Uist.

Trainee required in mixed urban and rural partnership in Cornwall. Furnished flat available. Either sex. Excellent experience and adequate spare time. Usual salary.—Box T.1362, B.M.J.

Trainee required, Lancashire, January. Good general training. Carpeted flat away from surgery available. Rota. Two partners.—Box T.598, B.M.J.

Trainee required, mid-February, for practice in pleasant Surrey district 12 miles from London. Practically no night or week-end duties. Cricket and golf, etc., encouraged.—Box T.1475, B.M.J.

Trainee required. Partnership of three. Small country town near East Coast. G.P. hospital. X-ray and laboratory facilities. Ancillary help. Ample leisure. Accommodation available. Married man preferred. Maximum salary and allowances.—Box T.1382, B.M.J.

Trainee wanted for East Lothian practice, two partners. Attractive district near Edinburgh. Commence about May 1.—Apply Dr. Kirk, Gullane, East Lothian.

Traineeship available. Good opportunity for training within the spirit of the scheme.—Dr. J. D. Halford, 25 Navarre Street, Ipswich, Suffolk. Tel. Ipswich 51079.

Traineeship vacant February, Filey, Yorks. Coastal holiday resort. Full Ministry scale salary and allowances. Group practice. 'Phone Filey 3033, or write Vincent, Dibb & Richardson, The Surgery, Filey.

Trowbridge. Two partners with comfortable lists want the interest of training someone, preferably single. Mixed urban and rural, midder, G.P. hospital. Good rapport with consultants. Usual trainee allowances.—Holliday, 18 Wingfield Road, Trowbridge, Wilts.

Vacancy Trainee, Midlands rural partnership of four. Two assistants. N.H.S. list 5,500 and appointments. Access Obstetric beds. N.H.S. salary. Accommodation available.—Box T.1502, B.M.J.

LOCUMS (Vacant)

Experienced Locum required for rural medical partnership in Weardale, Co. Durham, from July 30 to September 2 inclusive. Furnished flat available if required. Car owner.—Drs D. and E. M. Thomson and Liddell, Stanhope, Bishop Auckland. Tel. Stanhope 297.

February 27, two weeks, East Anglian practice. Two partners remain. Preferably with car. Accommodation available. Knowledge of N.H.S. work. Remuneration by arrangement.—Box L.1516, B.M.J.

Locums, particularly with cars, urgently required for vacancies in all parts, long or short periods.—Percival Turner Medical Agency, 25 Maiden Lane, London W.C.2.

Locum required April 13 to May 4, also three weeks September, October. 75 guineas, petrol, full hotel board.—Box L.1486, B.M.J.

Locum required for two weeks, March 13. Pleasant residential area, Morecambe Bay.—Box L.1460, B.M.J.

Locums (Vacant)—contd.

Locum required, May 27 to June 24, rota, car or allowance. Family accommodation. North-west Birmingham. 2½ guineas per week, plus expenses. —Box L.1503, B.M.J.

Locum required, month of July. Pleasant rural practice, N. Ireland. Car if required. Live in. Usual terms.—Dr. Wm. E. Stafford, Sion Mills, Co. Tyrone.

Locum required, pleasant semi-rural practice. Rota. Three partners remain. February 17 to March 12.—Dr. MacDonald, Garve, North Berwick 2169.

Locum required, single-handed practice, June 1 to 16. Croydon area.—Box L.1517, B.M.J.

Locum required South Dorset coastal area July 31 to September 3. Usual terms. Single accommodation only.—Box L.1461, B.M.J.

Locum wanted. South Yorkshire practice, not single-handed. Car owner-driver. Usual fees and good accommodation. For first two weeks in June and whole month of August and two weeks September inclusive. Replies to Box L.1476, B.M.J.

Near Wakefield, March 29 to April 12. Car owner. £53, plus car expenses. Week-end rota. —Box L.1177, B.M.J.

Two-man partnership in Basildon, Essex, requires Locum from February 27 to March 4.—Box L.1487, B.M.J.

Wanted. A Locum from June to September inclusive. Five partners. South-West coast town. Usual terms.—Box L.1463, B.M.J.

Wanted, Locum, Live in, August. Country practice, four miles Lincoln. Car provided. Salary at current rate.—Dr. Stevenson, Heighington, Lincoln.

LOCUMS (Available)

Edinburgh. Experienced doctor, car, available now for part-time work in G.P.—Box L.1462, B.M.J.

Lady doctor (Scottish) in practice would do Locum in Ireland (country), March 24 to April 7. To occupy house with two children on holiday.—Box L.1504, B.M.J.

SITUATIONS (Vacant)

Family Planning Association

The Bristol Branch is arranging a monthly session for fiancés at its pre-marital clinic. Thursdays 6-7 p.m. Applications are invited from male doctors interested in the work of the Association. Applications to the Secretary, F.P.A., the Central Health Clinic, Tower Hill, Bristol 2.

SITUATIONS (Wanted)

Anaesthetist Consultant available two days weekly, other times by arrangement.—Box S.1491, B.M.J.

APPOINTMENTS

ANAESTHETICS

SHEFFIELD REGIONAL HOSPITAL BOARD

CONSULTANT ANAESTHETIST

(whole-time or maximum part-time) for hospitals in the Barnsley and Rotherham and Mexborough Areas. Application forms and further details from the Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield. Forms to be returned by March 4, 1961. (8806)

SOUTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD

Applications are invited for appointments of
CONSULTANT ANAESTHETISTS

for 11 notional half-days weekly to the Bromley Group of Hospitals, for duties mainly at the Children's Hospital, Sydenham. More than one appointment may be made within the total number of sessions, and applicants for part sessions (not less than three) should state the number of sessions they wish to undertake. Candidates must have had a wide experience in anaesthetics and hold the qualification of F.F.A.R.C.S. Applicants may visit the hospitals concerned. Applications, stating nationality, age, sex, qualifications and experience, including details of present appointment and of war or national service, together with the names and addresses of three referees, to be sent to the Secretary, Advisory Appointments Committee, South-East Metropolitan Regional Hospital Board, 40 Eastbourne Terrace, London W.2, not later than February 18. (8807)

THE MIDDLESEX HOSPITAL, W.1

Applications invited for the post of
CONSULTANT ANAESTHETIST

for nine half-days weekly, working at the Middlesex Hospital and the Hospital for Women, Soho Square. Applications, naming three referees, should be sent to the Secretary-Superintendent by March 4, 1961. (9082)

SOUTH-WESTERN REGIONAL HOSPITAL BOARD

Bristol Clinical Area

Applications are invited for the appointment of a
CONSULTANT ANAESTHETIST

at Frenchay Hospital, Bristol. The appointment will be held on a whole-time or maximum part-time basis. The sessions required will be mainly in the special departments of thoracic, plastic and neurosurgery. Experience in anaesthesia in these specialties would be an advantage. Twelve copies of applications, stating date of birth, qualifications and experience, together with the names and addresses of two referees, should be sent to the Secretary of the Regional Hospital Board, 27 Tyndalls Park Road, Bristol 8, not later than February 25, 1961. (9032)

WESTERN REGIONAL HOSPITAL BOARD

Applications are invited for the following appointment:

CONSULTANT ANAESTHETIST

at the Glasgow Royal Infirmary, and with duties elsewhere in the Region as may be required. The appointment is whole-time or with maximum part-time sessions. Applications (16 copies), stating date of birth, qualifications, experience, present appointment, and the names of three referees, to reach the Secretary, Western Regional Hospital Board, 351 Sauchiehall Street, Glasgow C.2, not later than 30 days after the publication of this advertisement. (9091)

BEDFORD GENERAL HOSPITAL (424 beds)

LOCUM TENENS ANAESTHETIC REGISTRAR required from February 13, 1961, for 4 to 6 weeks. Applications, stating qualifications, previous experience and names and addresses of two referees, to Group Secretary, Bedford Group H.M.C., 3 Kimbolton Road, Bedford. Tel Bedford 5401, Ext. 22 (8781)

DARTFORD HOSPITAL MANAGEMENT COMMITTEE

The Bow Arrow Hospital, Dartford, Kent

LOCUM ANAESTHETIC REGISTRAR required from February 9, 1961, to February 25, 1961. Salary £25 a week. Applications to the Group Secretary (8850)

KING'S COLLEGE HOSPITAL
Denmark Hill, S.E.5

Applications are invited for the post of full-time **REGISTRAR in the Department of Anaesthetics** vacant from March 1, 1961. Applications, giving details of age, qualifications and previous experience, together with the names of two referees, should be sent to the undersigned by February 18. —J. D. Banks, House Governor. (9033)

LIVERPOOL REGIONAL HOSPITAL BOARD

Sefton General and Alder Hey Children's Hospitals

Applications are invited for the post of
ANAESTHETIC REGISTRAR

with duties at Sefton General Hospital in the first instance and subsequently at Alder Hey Children's Hospital. Forms of application, from Dr. T. Lloyd Hughes, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, 55 Castle Street, Liverpool 2, to be returned not later than February 18, 1961.—Vincent Collinge, Secretary to the Board. (9076)

NORTHERN IRELAND HOSPITALS AUTHORITY

APPOINTMENT OF REGISTRAR OR SENIOR REGISTRAR

Applications are invited for a whole-time post as Registrar or Senior Registrar in Anaesthetics at hospitals managed by the West Tyrone Hospital Management Committee. The national terms and conditions of service for hospital medical and dental staff will apply. Applications to be made on a form obtainable (with further particulars) from the Secretary, Northern Ireland Hospitals Authority, 27 Adelaide Street, Belfast 2, and to be returned not later than February 13, 1961. (8991)

NORWICH HOSPITALS

LOCUM REGISTRAR IN ANAESTHETICS required at once and until May 7, 1961, whilst the permanent holder of the post is on study leave. Resident or non-resident. Salary £25 per week, in accordance with terms and conditions of service of hospital medical staff. Membership of a Medical Defence Society is a condition of appointment. Applications, stating age, qualifications and experience, with names of two referees, to Group Secretary, H.M.C., St Stephen's Road, Norwich, Norfolk NOR 53A. (8851)

ST. HELIER HOSPITAL, Carshalton, Surrey (763 beds)

Non-resident
ANAESTHETIC REGISTRAR

The hospital is recognized for the F.F.A.R.C.S. and the D.A. Post vacant May 15. Application forms, returnable by February 18, obtainable from the Group Secretary at above address. (8808)

SOUTH-EASTERN REGIONAL HOSPITAL BOARD, Scotland

REGISTRAR IN ANAESTHETICS

for the Central Group of Hospitals, Edinburgh. This post gives varied experience in both adult and child anaesthesia, and is recognized for the F.F.A. R.C.S. and the D.A. Apply, giving particulars of age, qualifications and previous experience, and the names of two referees, to the Secretary, 11 Drumsheugh Gardens, Edinburgh 3, by February 18, 1961. (9139)

THE LONDON HOSPITAL, Whitechapel, E.1

Applications are invited for the post of
SENIOR REGISTRAR

to the Department of Anaesthetics, becoming vacant on April 1, 1961. A higher qualification is required. Applications (10 copies), giving the names and addresses of three referees, should be received by the undersigned by February 13, 1961.—H. Brierley, House Governor (9017)

THE NATIONAL HOSPITALS FOR NERVOUS DISEASES

Applications are invited from registered medical practitioners for the appointment of
ANAESTHETIC REGISTRAR

(Resident). This post carries the grade of Registrar. Applications, giving the names of three referees, to be sent to the undersigned not later than February 10, 1961.—Geoffrey A. Robinson, Secretary to the Board of Governors, the National Hospitals for Nervous Diseases, Queen Square, London W.C.1. (8661)

WELSH REGIONAL HOSPITAL BOARD

SENIOR REGISTRAR IN ANAESTHETICS

to serve the Glantawe Hospital Management Committee, which includes three large hospitals in the Swansea area. The post will provide experience in all branches of anaesthesia. Non-resident. Subject to review annually. Application forms (12 copies) from S.A.M.O., Welsh Regional Hospital Board, Temple of Peace and Health, Cathays Park, Cardiff, within 14 days (8949)

WESSEX REGIONAL HOSPITAL BOARD

ANAESTHETIC REGISTRAR

Applications are invited for the above full-time, non-resident appointment in the Isle of Wight Group of hospitals. Forms of application may be obtained from the Group Secretary, I.W. Group Hospital Management Committee, Clatterford House, Carisbrooke, Newport, I.W., to whom they should be returned on completion. (8125)

WESTERN REGIONAL HOSPITAL BOARD

Applications are invited for the following appointment, which will be for one year in the first instance:

SENIOR REGISTRAR IN ANAESTHETICS

based at the Western Infirmary, Glasgow. Applications (12 copies), stating date of birth, qualifications, experience, present appointment, and the names of three referees, to reach the Secretary, Western Regional Hospital Board, 351 Sauchiehall Street, Glasgow C.2, by February 11, 1961. (9092)

WOLVERHAMPTON GROUP

ANAESTHETIC REGISTRAR

Duties mainly at Royal (310 beds) and New Cross (630 beds) Hospitals. Post recognized F.F.A./ D.A. Married accommodation available. Application forms, from the Group Secretary, the Royal Hospital, Wolverhampton, to be returned by February 13, 1961. Candidates may visit hospitals. (8852)

WORTHING GROUP HOSPITAL MANAGEMENT COMMITTEE

Applications are invited for the post as full-time
LOCUM ANAESTHETIC REGISTRAR

in the above Group (Southlands Hospital (411 beds), Worthing Hospital (210 beds)) during the period February 25 to April 7 inclusive. Applications, stating qualifications, age, nationality, and experience, should be forwarded immediately to the undersigned.—A. V. Oakton, Group Secretary, 129 Brighton Road, Worthing, Sussex. (8809)

BURNLEY AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

JUNIOR HOSPITAL MEDICAL OFFICER
(Anaesthetics)

The post offers ample opportunity for instruction and practical experience under Group Consultants. Resident accommodation is available. Applications, with two references, to Group Secretary, Burnley General Hospital. Position now vacant. (8974)

DONCASTER HOSPITAL MANAGEMENT COMMITTEE

Applications are invited for the post of
RESIDENT ANAESTHETIST

(J.H.M.O.), with duties at Western Hospital, Doncaster, and Doncaster Royal Infirmary. Applications to the Group Secretary at Doncaster Royal Infirmary. (8491)

Anaesthetics—contd.

ASHTON, HYDE AND GLOSSOP HOSPITAL MANAGEMENT COMMITTEE

Ashton-under-Lyne General Hospital (Manchester Region)

S.H.O. (Anaesthesia)
required at the above hospital. Eight miles from medical school. This post has study periods allowed from duties in a 600-bedded mainly acute hospital, offering wide general experience. Recognized for D.A. only. Applications, with copies of two references, to Group Secretary, General Hospital, Ashton-under-Lyne, Lancashire. (8461)

BOARD OF MANAGEMENT FOR THE ABERDEEN GENERAL HOSPITALS

Applications are invited for the appointment of a
SENIOR HOUSE OFFICER
in the Department of Anaesthetics, with duties at the Aberdeen Royal Infirmary and other hospitals. This post is a whole-time one and is non-resident. Applications, giving details of qualifications and experience, with the names of two referees, should be lodged with the Group Secretary, Aberdeen General Hospitals, P.O. Box No. 92, Foresterhill House, Ashgrove Road West, Aberdeen, within 14 days of the date of this advertisement (9013)

BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE

SENIOR HOUSE OFFICER (Anaesthetics)
required immediately at Poole General Hospital. Post recognized for the D.A. and F.F.A.R.C.S. Applications to the Hospital Secretary. (8782)

COUNTY AND CITY OF PERTH GENERAL HOSPITALS

Applications are invited for the following post:
SENIOR HOUSE OFFICER
Perth Area Anaesthetic Services. Applications, giving age, qualifications, experience, and names of two referees, should be sent to the Group Medical Superintendent, Perth Royal Infirmary, Perth. (8985)

MEMORIAL HOSPITAL, Shooters Hill, S.E.18

SENIOR HOUSE OFFICER (Anaesthetics)
The post provides good experience and is recognized for F.F.A.R.C.S. and D.A. Six months' resident appointment, and may then be renewed. Apply to Group Secretary, Memorial Hospital, Woolwich, S.E.18. (8718)

MILE END HOSPITAL
Bancroft Road, London E.1 (476 beds)

SENIOR HOUSE OFFICER (Anaesthetics)
Recognized for F.F.A. and D.A. Post vacant immediately. Application forms, obtainable from Physician Superintendent, to be returned as soon as possible, with copies of not more than three testimonials. (9114)

MILLER GENERAL HOSPITAL
Greenwich, S.E.10
(Recognized for D.A. and F.F.A.R.C.S.)

RESIDENT SENIOR HOUSE OFFICER (Anaesthetics)
Vacant February 19. Six months' appointment (renewable). Write, with testimonials, to Group Secretary, G. and D. H.M.C., St. Alfege's Hospital, S.E.10. (9067)

NORTHAMPTON GENERAL HOSPITAL (536 beds)

Vacancy middle February for
SENIOR HOUSE OFFICER
Department of Anaesthetics. Appointment to September 30, 1951, in first instance. Recognized for D.A. and F.F.A.R.C.S. Applications, with copies of two testimonials, as soon as possible, to S. G. Hill, Superintendent. (8494)

OLDHAM AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

APPOINTMENT OF SENIOR ANAESTHETIC HOUSE OFFICER
Applications are invited for the appointment of Senior Anaesthetic House Officer (resident) for duties at the Oldham Royal Infirmary (204 beds) and the Oldham and District General Hospital (965 beds), vacant on March 1, 1961. Applications, together with the names of two referees, should be forwarded forthwith to the Group Secretary, Central Offices, Rochdale Road, Oldham (8686)

ORMSKIRK COUNTY HOSPITAL
Wigan Road, Ormskirk, Lancs (460 beds)

RESIDENT SENIOR HOUSE OFFICER IN ANAESTHETICS
required. Applications, with full details of nationality, age, qualifications and experience, together with two names for reference, to the undersigned, at above address, as soon as possible.—H. E. Beck, Group Secretary. (9117)

IMPORTANT NOTICE

APPOINTMENTS

Medical practitioners are requested

not to apply

for any appointment specified in this notice or for any appointment under an authority referred to in this notice without first communicating with the Secretary of the British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, to learn the views of the Association regarding the terms and conditions of service pertaining to the appointments. Medical practitioners are requested not to apply for, accept, or sit on Interview Boards for any of the Irish appointments without first communicating with the Medical Secretary of the Irish Medical Association, 10 Fitzwilliam Place, Dublin.

REPUBLIC OF IRELAND

Army Medical Services.
Portiuncula Hospital, Ballinasloe, Co. Galway. Resident and Visiting Medical Staff.

LOCAL APPOINTMENTS COMMISSION

All County Physician posts.
All County Surgeon posts.
Obstetrician-Gynaecologist, Waterford Board of Public Assistance.
Medical Referee in the Department of Social Welfare, Dublin.
Cork Health Authority, Physician, St. Finbarr's Hospital, Cork.

GOVERNMENT OF HONG KONG.

UNIVERSITY OF HONG KONG.

By Order of the Council,
D. P. STEVENSON,
January 30, 1961. Secretary.

PRESTON AND CHORLEY HOSPITAL MANAGEMENT COMMITTEE

Preston Royal Infirmary (413 beds)

SENIOR HOUSE OFFICER IN ANAESTHETICS
required. Resident or non-resident. Recognized for F.F.A.R.C.S. Post vacant mid-April. Applications, with names of two referees, to Group Secretary, Royal Infirmary, Preston, Lancs. (8783)

QUEEN MARY'S HOSPITAL Sidcup, Kent

RESIDENT ANAESTHETIST
(Senior House Officer)
required from March 9, 1961. The post is recognized for the F.F.A. and D.A., and is for one year in the first instance. Applications, stating age, qualifications and experience, together with the names and addresses of two referees, should be sent to the Secretary immediately. (9045)

ROYAL ALEXANDRA INFIRMARY, Paisley

SENIOR HOUSE OFFICER or JUNIOR HOSPITAL MEDICAL OFFICER IN ANAESTHETICS
required for the Paisley group of hospitals. Post is recognized for D.A. Applications, stating previous experience, together with the names of two referees, should be submitted to Group Medical Superintendent, Royal Alexandra Infirmary, Paisley. Post became vacant February 1, 1961. (9146)

SELLY OAK HOSPITAL, Birmingham 29
(Equipped beds 1,033)

Applications are invited for the post of
SENIOR HOUSE OFFICER (Anaesthetics)
Resident. Recognized for F.F.A. and D.A. Tuition under consultant guidance and ample time for study. Applications, giving age, qualifications, experience, and copies of three testimonials or names of three referees, to the Medical Superintendent. (8477)

SHOTLEY BRIDGE GENERAL HOSPITAL
Shotley Bridge, Consett, Co. Durham (529 beds)

Applications are invited for the post of
SENIOR HOUSE OFFICER IN ANAESTHETICS
(Male or female). Resident. Post recognized D.A. and F.F.A.R.C.S. Salary in accordance with Whitley Council terms and conditions of service. Applications, stating age, qualifications and experience, with names of two referees, to the Group Secretary. (9051)

SHREWSBURY HOSPITAL GROUP

Royal Salop Infirmary/Copthorne Hospital (500 beds)

RESIDENT ANAESTHETIST
(Senior House Officer). Post recognized for F.F.A. R.C.S. Registrar also employed. Vacant March 24, 1961. Applications, and copy testimonials, to Group Secretary, Copthorne Hospital, Shrewsbury. (8495)

SOUTHEND-ON-SEA HOSPITAL

Applications are invited for two appointments as
RESIDENT ANAESTHETIST
(Senior House Officer grade). Posts vacant April 1, 1961. The appointments are recognized as fulfilling the conditions of the F.F.A.R.C.S. and the D.A. Applications, stating age, experience and qualifications, together with copies of two testimonials, should be sent to the Secretary, General Hospital, Prittlewell Chase, Southend-on-Sea, to arrive not later than February 17. (9022)

THE ROYAL FREE HOSPITAL GROUP
Gray's Inn Road, W.C.1

SENIOR RESIDENT ANAESTHETIST
(Senior House Officer grade) from April 1, 1961, for six months. Application forms, from the Secretary to the Board of Governors, to be returned by February 8, 1961. (8691)

WEST CUMBERLAND HOSPITAL MANAGEMENT COMMITTEE

SENIOR HOUSE OFFICER IN ANAESTHETICS
(Recognized F.F.A.R.C.S. and D.A.)
required for service in West Cumberland Group, based on Whitehaven Hospital. A house might be available. Applications, with dates and names of two referees, to Group Secretary, Workington Infirmary, Cumberland. (8102)

WEST HAM GROUP HOSPITAL MANAGEMENT COMMITTEE, Stratford, E.15

ANAESTHETIST
(Resident). Senior House Officer grade. For 12 months, commencing a convenient date in February, 1961. Six months East Ham Memorial Hospital and six months Queen Mary's Hospital for the East End, combined post recognized for D.A. and F.F.A.R.C.S. Applications, with names of three referees by February 11, 1961, to Hospital Secretary, East Ham Memorial Hospital, Shrewsbury Road, London E.7. (9065)

WESTON-SUPER-MARE GROUP HOSPITALS (190 beds)

Applications are invited for the vacant resident post of
SENIOR HOUSE OFFICER IN ANAESTHETICS
(Male or female). Previous experience in anaesthetics an advantage but not essential. Recognition for F.F.A.R.C.S. applied for. Applications, stating age, nationality, qualifications and experience, together with names and addresses of two referees, should be addressed to the Group Secretary, Weston-super-Mare Hospital Management Committee. (8976)

WINFORD ORTHOPAEDIC HOSPITAL
near Bristol (75 children's beds, 150 adult beds)

Applications invited from registered medical practitioners for post of
SENIOR HOUSE OFFICER IN ANAESTHETICS
becoming vacant March 19, 1961. Post gives time and university facilities for those studying for F.F.A.R.C.S. The hospital is closely associated with Bristol Royal Infirmary, and visits there may be made by arrangement. Salary £852 per annum. Applications, with names for reference, to the Secretary. (8624)

BLOOD TRANSFUSION

SOUTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

WHOLE-TIME JUNIOR HOSPITAL MEDICAL OFFICER
required in the Blood Transfusion Service in the South-West and South-East Metropolitan Regions. Duties include the collection of blood from donors in Area covered by South-West and South-East Metropolitan Regional Hospital Boards and work in laboratories in the South London Blood Transfusion Centre, Stanley Road, Sutton, Surrey. Salary scale £1,100 by £60 to £1,580 per annum. Applications (two copies), giving date of birth, qualifications, experience, and three referees, to the Medical Director at the above Centre immediately. Applicants may visit by local arrangements. (8799)

IMPORTANT: All intending applicants should read the revised NOTICE at the top of page 46

CASUALTY

SOUTHEND GENERAL HOSPITAL
Southend-on-Sea, Essex

TEMPORARY CASUALTY REGISTRAR
required from March 27, 1961. Possibility of locum appointment from March 8 to 26, 1961. Post recognized for F.R.C.S. if held for six months. Applications, stating age and previous experience, together with copies of two recent testimonials, should be sent to the Secretary, General Hospital, Southend-on-Sea, as soon as possible. (9090)

UPTON HOSPITAL, Slough, Bucks

LOCUM CASUALTY REGISTRAR
required February 25 to March 31, working with an S.H.O. and a part-time officer in busy Casualty Department. Resident post. Applications, with two referees, to Secretary. (8160)

ASHTON, HYDE AND GLOSSOP HOSPITAL MANAGEMENT COMMITTEE

JUNIOR HOSPITAL MEDICAL OFFICER
(resident) required for Casualty Department, Ashton-under-Lyne General Hospital. Appointment limited to four years. Minimum commencing salary £1,100 per annum, but higher salary may be paid according to experience and qualifications. There may be some orthopaedic duties to be undertaken by the holder of this post. Recognized under F.R.C.S. regulations. Apply, giving age, experience, qualifications, and two references, to Group Secretary, General Hospital, Ashton-under-Lyne. (8853)

BANBURY, HORTON GENERAL HOSPITAL (162 beds)

LOCUM CASUALTY OFFICER
required February 27 for two weeks. Salary according to experience up to Junior H.M.O. grade. Applications, with full details and names of two referees, to the Secretary. (8854)

HUDDERSFIELD HOSPITAL MANAGEMENT COMMITTEE

Huddersfield Royal Infirmary (285 beds)

Applications are invited for the post of
CASUALTY OFFICER
to commence duties on March 6. The post, which is resident, is recognized under the Fellowship regulations and will be graded either J.H.M.O. or S.H.O., according to experience. Duties terminate at 7 p.m., with one night weekly on call. Applications should be accompanied by copies of three recent testimonials, and addressed to the undersigned as soon as possible.—H. J. Johnson, Group Secretary, the Royal Infirmary, Huddersfield. (8700)

ROCHDALE AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Rochdale Infirmary (109 beds)

LOCUM J.H.M.O. CASUALTY OFFICER
required immediately. Married furnished accommodation available. Apply Group Secretary, Birch Hill Hospital, Rochdale. (8035)

SOUTHPORT GENERAL INFIRMARY (189 beds)

RESIDENT CASUALTY OFFICER
(J.H.M.O.). Furnished flat available. Normally, there is no evening or week-end work. Apply, with two copy testimonials, to Group Secretary, Southport and District Hospital Management Committee, Promenade Hospital, Southport. (8954)

TAUNTON AND SOMERSET HOSPITAL

JUNIOR HOSPITAL MEDICAL OFFICER
male or female, required for full-time resident Casualty, Orthopaedic and Ophthalmic work. Two other Junior Hospital Medical Officers employed. Post recognized for F.R.C.S. Applications, stating age, nationality, qualifications and experience, together with the names of two referees, to the Group Secretary, Taunton Hospital Management Committee, Musgrove Park Hospital, Taunton, Somerset. (8810)

WARRINGTON INFIRMARY (170 beds)

Applications are invited for the post of
RESIDENT CASUALTY OFFICER
(Male or female)
The post is graded Junior Hospital Medical Officer and recognized for the F.R.C.S. Scale of salary £1,100 to £1,580, less a deduction of £215 per annum for residential emoluments. Applications will also be considered from Junior Medical Officers who would be graded House Officer or Senior House Officer at the scale appropriate to the experience of the applicant. Consideration will also be given to applicants who desire the appointment on a short-term basis. A Senior Hospital Medical Officer is in charge of the department. Applications, stating age, experience and qualifications, should be forwarded or telephoned to Henry L. Boot, Group Secretary, Warrington and District Hospital Management Committee, c/o General Hospital (Tel. No. Warrington 33161), Warrington, Lancs. (9118)

CHANNEL ISLANDS, JERSEY, GENERAL HOSPITAL

Applications are invited for the post of
FIRST CASUALTY OFFICER
(S.H.O. grade), which will become vacant on March 25, 1961. The appointment is for six months and is renewable for a further six months. A second Casualty Officer is employed during the six summer months. Applications to be submitted not later than February 9, 1961, to the President, Public Health Committee, General Hospital, Jersey, C.I. (8281)

CHANNEL ISLANDS, JERSEY, GENERAL HOSPITAL

Applications are invited for the post of
SECOND CASUALTY OFFICER
(S.H.O. grade) from April 8 to October 7 inclusive. Applications to be submitted not later than February 9, 1961, to the President, Public Health Committee, General Hospital, Jersey, C.I. (8282)

DARLINGTON DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Darlington Memorial Hospital

CASUALTY OFFICER (S.H.O.)
Applications are invited from male or female practitioners for the above post, vacant April 1, which is recognized for the F.R.C.S.(Eng.). Salary £1,050 per annum at age 27 or under, £1,100 per annum at age 28 or over, deduction of £180 per annum for full residential emoluments. The post is tenable for 12 months, or for a shorter period if desired. The department carries an establishment of two medical officers. The successful candidate will work in conjunction with a Consultant Orthopaedic Surgeon. Apply, with references, stating age and experience, to the undersigned.—G. W. Beckwith, Group Secretary. (8654)

ESSEX COUNTY HOSPITAL, Colchester, Essex (178 beds)

Applications invited for post of
SENIOR HOUSE OFFICER
to Casualty and Radiotherapy Departments
Post tenable for six months or one year. Recognized for F.R.C.S. Applications, with copies of three testimonials, to Group Secretary, Colchester H.M.C., 14 Pope's Lane, Colchester, Essex. (8855)

FARNBOROUGH HOSPITAL, Kent (700 beds)

SENIOR HOUSE OFFICER
for Casualty Department required as soon as possible. Post recognized for F.R.C.S. This post offers good experience in a well-equipped modern department. No evening duties and no week-end duties (apart from Saturday mornings). Apply, stating age, qualifications and experience, and naming three referees, to Hospital Secretary. (8753)

KENT AND SUSSEX HOSPITAL
Tunbridge Wells (301 beds)

Applications invited for post of
SENIOR HOUSE OFFICER (Casualty)
(Male or female). Recognized F.R.C.S. Vacant February 27, 1961. Apply immediately, giving age, qualifications, experience, with names of two referees, to Group Secretary, Sherwood Park, Pembury Road, Tunbridge Wells. (8641)

LISTER HOSPITAL, Hitchin, Herts

CASUALTY OFFICER
(S.H.O. grade) required for duty with Accident Service as an Orthopaedic House Surgeon. Vacant March 20, 1961. Recognized in Fellowship regulations. Applications to the Medical Administrator, Lister Hospital, as soon as possible. (8811)

MANSFIELD AND DISTRICT GENERAL HOSPITAL (205 beds)

Applications are invited for the post of
SENIOR HOUSE OFFICER
to the Casualty and Orthopaedic Department (vacant mid-March). The post is recognized for F.R.C.S. regulations. Applications, stating qualifications, age, experience, etc., to be forwarded to the Secretary, Mansfield Hospital Management Committee, Crow Hill Drive, Mansfield, Notts (8123)

MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE

St. Bartholomew's Hospital, Rochester, Kent

CASUALTY OFFICER
(S.H.O. grade). Applications are invited for this resident post (one of two in department), vacant March 1, 1961. Recognized for F.R.C.S., and tenable for six to 12 months by mutual agreement. Salary £1,050 or £1,100 per annum, according to age, less £180 for residence. Applications, stating age, qualifications, experience, nationality, and names of two referees, to the Hospital Secretary. (8760)

READING AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Applications are invited for the post, vacant mid-February, of
RESIDENT SENIOR HOUSE OFFICER
(Area Accident and Orthopaedic Department). Recognized for F.R.C.S. Duties include Area Casualty Department work at Battle Hospital, Reading, and general responsibilities in the team, with Registrars and Junior House Officers. Apply, giving nationality, present post, and qualifications (with dates), together with names of two referees, to Group Secretary, 3 Craven Road, Reading. (9011)

ROYAL WEST SUSSEX HOSPITAL, Chichester (200 beds)

SENIOR HOUSE SURGEON (Casualty Officer)
Deputy R.S.O. Recognized for F.R.C.S. Eight house staff. Vacant March 1, 1961. Non-resident post (single residential quarters available). Salary £1,050 or £1,100 per annum, according to age. Apply to Hospital Secretary, stating age, experience and qualifications, with references or names of referees. (9087)

ST. HELIER HOSPITAL, Carshalton, Surrey (763 beds)

CASUALTY OFFICER
(Senior House Officer). Post recognized for F.R.C.S. Applications, stating age, qualifications and experience, with copies of testimonials and the names of two referees, should be sent immediately to the Secretary. (8813)

ST. PETER'S HOSPITAL, Chertsey, Surrey
(late Botleys Park War Hospital)
and WOKING VICTORIA HOSPITAL

CASUALTY OFFICER
(S.H.O. grade). Recognized for F.R.C.S. The post gives time and opportunity for reading and for attending consultative out-patients. The two hospitals are 4½ miles apart, and each of two Casualty Officers spends half his time at St Peter's, which collects the major casualties of the area, and the remainder at Woking, which collects large numbers of all other casualties. Resident or non-resident. Applications, with names and addresses of referees, to Physician Superintendent, St. Peter's Hospital, Chertsey. (6572)

SALISBURY GROUP HOSPITAL MANAGEMENT COMMITTEE

Salisbury General Hospital

Applications are invited for the post of
CASUALTY OFFICER
(Senior House Officer) for a period of one year, to start on March 27, 1961. Apply, giving names and addresses of two referees, to Hospital Secretary, General Infirmary, Salisbury. (8812)

SOUTH CHESHIRE HOSPITAL MANAGEMENT COMMITTEE

Crewe and District Memorial Hospital
(110 beds acute, and continuation 32 beds)

S.H.O. (Casualty)
required. Approved for F.R.C.S. Modern well-equipped department. Vacant March 1. Apply immediately, stating age, qualifications, etc., with names of two referees, to the Group Secretary, Barony Hospital, Nantwich, Cheshire. (8729)

THE PRINCESS BEATRICE HOSPITAL, S.W.5

Applications are invited for the post of
CASUALTY OFFICER
Non-resident. Senior House Officer grade. Recognized for the F.R.C.S. Post vacant March 1. Applications, stating age, qualifications, with three testimonials, to the House Governor, the Princess Beatrice Hospital, Earl's Court, S.W.5, within 10 days. (9058)

THE ROYAL FREE HOSPITAL
Gray's Inn Road, W.C.1

SENIOR CASUALTY OFFICER
(Senior House Officer grade). The appointment is full-time, resident, for six months from April 1, 1961. Application forms, from the Secretary to the Board of Governors, to be returned by February 11, 1961. (8692)

MEDICAL PRACTICES ADVISORY BUREAU

APPOINTMENTS INFORMATION SERVICE

Doctors seeking information about openings in the various fields of medical practice or introductions as locums, assistants or partners, are invited to address inquiries to the Medical Director, Medical Practices Advisory Bureau, at:

B.M.A. House, Tavistock Square, London W.C.1. Telephone number: Euston 5601/2.

33 Cross Street, Manchester. Telephone number: Deansgate 3691.

7 Drumsheugh Gardens, Edinburgh 3. Telephone number: Caledonian 7184.

9 Lynedoch Crescent, Glasgow C.3. Telephone number: Douglas 1862.

The services of the Medical Practices Advisory Bureau are free to members of the Association (except in the case of some vacancies overseas).

Casualty—contd.

WANSTEAD HOSPITAL, Hermon Hill, E.11 (191 beds)

Applications are invited for the post of
CASUALTY OFFICER
including duties in Orthopaedic Department. (Recognized for F.R.C.S.) Graded Senior House Officer. Applications, with full details and copies of two recent testimonials, should be sent immediately to Secretary, Forest Group H.M.C., Langthorne Road, E.11. (8856)

WANSTEAD HOSPITAL, Hermon Hill, E.11 (191 beds)

Applications invited for post of
SENIOR (Resident) HOUSE OFFICER
(Vacant March 17, 1961). Post includes duties in the Casualty Department and deputizing for the Resident Surgical Officer. Post recognized for F.R.C.S. Applications, stating age, qualifications, experience, together with copies of two recent testimonials, should be sent immediately to Secretary, Forest Group Hospital Management Committee, Langthorne Road, E.11. (8800)

READING AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Reading and District Accident and Orthopaedic Service, Battle Hospital, Reading, Berks

JUNIOR HOUSE OFFICER
required. Post vacant mid-February. Pre- or post-registration. General duties in the service team, including casualty. F.R.C.S. recognized. Applications to Secretary. (9002)

CHEST AND TUBERCULOSIS

(see also THORACIC SURGERY)

EAST ANGLIAN REGIONAL HOSPITAL BOARD

SENIOR REGISTRAR IN CHEST MEDICINE
Cambridge Area, which includes the Cambridge Chest Clinic and Papworth Hospital, where the Consultant has beds for Chest Diseases and there are facilities for Respiratory Physiology. Applicants should have good experience in general medicine and special experience in chest diseases. Higher qualification desirable. Applications, stating age, experience, and names of three referees, to S.A.M.O., 117, Chesterton Road, Cambridge, by February 27, 1961. Candidates invited to visit clinic by direct arrangement with Consultant Chest Physician, Chest Clinic, Castle Hill, Cambridge. (8499)

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

MEDICAL REGISTRAR IN CHEST MEDICINE
at Harefield Hospital, for treatment of tuberculous and non-tuberculous respiratory diseases. Wide experience in general medicine needed. The hospital has 311 beds for tuberculosis, 60 for non-tuberculous respiratory diseases, 90 beds for thoracic surgery, 100 beds for general medicine and surgery. There is also a respiratory physiology department. Excellent experience for candidates taking higher medical degrees. Application forms obtainable from, and returnable to, the Group Secretary, Harefield and Northwood Group H.M.C., Mount Vernon Hospital, Northwood, Middlesex, by February 21, 1961, quoting R.6. (9097)

REDHILL GROUP HOSPITAL MANAGEMENT COMMITTEE

MEDICAL REGISTRAR (Chest Diseases) (including duties in Acute General Medicine)
Applications are invited for the above-mentioned post, based on Redhill County Hospital, Surrey, with duties at Chest Clinics at Redhill, and at Horsham and Crawley, Sussex. Resident or non-resident. Post vacant immediately. Further information obtainable from Consultant Chest Physician (Redhill 3581). Application forms from Group Secretary, Redhill Group Hospital Management Committee Earlswood Mount, Pendleton Road, Redhill, Surrey. (8501)

BOARD OF MANAGEMENT FOR GREENOCK AND DISTRICT HOSPITALS

Applications are invited from suitably qualified medical practitioners for the following appointment:
The Bridge of Weir Hospital, Bridge of Weir
RESIDENT JUNIOR HOSPITAL MEDICAL OFFICER
Experience in the diagnosis and treatment of tuberculosis is desirable, but not essential. Applications, giving details of age, experience and qualifications, together with copies of testimonials or names of referees, should be forwarded to the Secretary and Treasurer at Headquarters, 47 Eldon Street, Greenock, within 14 days from date of insertion. The appointment will be subject to the National Health Service (Scotland) (Superannuation) Regulations. (8977)

BIRKENHEAD HOSPITAL MANAGEMENT COMMITTEE

St. Catherine's Hospital, Church Road, Birkenhead (General hospital of 466 beds)

SENIOR HOUSE OFFICER IN CHEST DISEASES
required from March 1, 1961, for 12 months. This non-resident post includes some duties at other nearby hospitals in the Group. Applicants should possess experience in this specialty. Apply, within one week, stating age, qualifications, experience, with the names and addresses of two referees, to Group Secretary, above Committee, St. James' Hospital, Tollemache Road, Birkenhead. (8955)

CREATON HOSPITAL, near Northampton (136 beds)

Applications are invited for the post of
RESIDENT SENIOR HOUSE OFFICER
for a period of six months from either early March or from April 1, 1961. The successful candidate will be engaged in the treatment of chest diseases, including pulmonary tuberculosis. There is a major thoracic surgical unit at the hospital, and some general surgery is also carried out. Applications, stating age, experience and qualifications, together with the names and addresses of two referees, should be sent to the Secretary, Northampton and District Hospital Management Committee, General Hospital, Northampton. (8814)

NEWCASTLE UPON TYNE HOSPITAL MANAGEMENT COMMITTEE

Walker Gate Hospital
Chest Unit

SENIOR HOUSE OFFICER
required for the above unit, to work under the supervision of the Senior Chest Physician. This is a resident post in a busy unit of 70 beds, treating all forms of acute chest disease, including tuberculosis. A knowledge of respiratory function tests is desirable, but not essential. Applications, with names of two referees, to be sent to the Secretary, Walker Gate Hospital, Newcastle upon Tyne 6. (9043)

TOTTENHAM GROUP HOSPITAL MANAGEMENT COMMITTEE, The Green, N.15

RESIDENT HOUSE PHYSICIAN
(S.H.O.) to St. Ann's General Hospital, for duty in the Chest Department, with other general duties, for a period of six months from April 1, 1961. Successful candidate would be expected to act as locum from March 15, 1961. Application form, from Secretary, to be returned by February 22, 1961. (8978)

CREATON HOSPITAL, near Northampton (136 beds)

Applications are invited for the post of
RESIDENT HOUSE OFFICER
in the pre-registration grade, for a period of six months from either early March or from April 1, 1961. The successful candidate will be engaged in the treatment of chest diseases, including pulmonary tuberculosis. There is a major thoracic surgery unit at the hospital, and some general surgery is also carried out. Applications, stating age, experience and qualifications, together with the names and addresses of two referees, should be sent to the Secretary, Northampton and District Hospital Management Committee, General Hospital, Northampton. (8815)

LONDON CHEST HOSPITAL

Hospitals for Diseases of the Chest

A vacancy occurs April 1, 1961, for
HOUSE PHYSICIAN
(Resident). Appointment for six months, three in London, three at the Country Branch, near Letchworth, and post graded as House Officer. Duties include work in the out-patient department and special clinics, as well as in wards. Applications, stating date of birth, qualifications (with dates), and previous appointments held, with copies of three testimonials, should reach the undersigned not later than February 15.—J. Robbins, House Governor, London Chest Hospital, E.2. (8968)

DENTAL

NORTHERN IRELAND HOSPITALS AUTHORITY

Joint Appointment with the Queen's University of Belfast

APPOINTMENT OF TUTOR/REGISTRAR OR SENIOR TUTOR/SENIOR REGISTRAR
Applications are invited for a whole-time post as Tutor/Registrar or Senior Tutor/Senior Registrar in Prosthetics at hospitals managed by the Belfast Hospital Management Committee. In the first instance the appointment will be for the period ending July 31, 1961, and will be made jointly by the Authority and the Queen's University, Belfast. The appointment will involve teaching and other university duties as Tutor or Senior Tutor in the Department of Dentistry. Applications should be made on a form which may be obtained (with further particulars) from the Secretary, Northern Ireland Hospitals Authority, 27 Adelaide Street, Belfast 2, and which must be returned so as to be received not later than February 13, 1961. (8993)

DERMATOLOGY

NEWCASTLE REGIONAL HOSPITAL BOARD

Special Area Committee for Cumberland and North Westmorland

CONSULTANT DERMATOLOGIST
whole-time or maximum part-time. Adaptations to provide a Dermatology Unit of 14/16 beds are being undertaken at the Cumberland Infirmary, Carlisle. In addition to in-patient and out-patient work at the Cumberland Infirmary, the appointee will hold out-patient clinics in West Cumberland at Whitehaven Hospital and Workington Infirmary, and will have the right to call on beds as required in these hospitals. The appointee will also undertake duties in the Hexham group of hospitals: he will be required to reside within five road miles of the Cumberland Infirmary, Carlisle. Facilities will probably be given to allow appointee to establish contact with the Professorial Dermatological Unit in Newcastle upon Tyne for purposes of consultation, teaching and research. Further information on application to the Senior Administrative Medical Officer, 72 Warwick Road, Carlisle, to whom applications, with names and addresses of three referees, must be sent within 28 days. Candidates may visit hospitals in the Special Area by arrangement with the Group Secretaries of the East and West Cumberland Hospital Management Committees. (8979)

WESTERN REGIONAL HOSPITAL BOARD

Applications are invited for the following appointment:
CONSULTANT DERMATOLOGIST
for Stirling/Falkirk/Alloa area. Certain beds will be available in that area, and will be under the charge of the person appointed, but until the number available is adequate for the needs of the area certain cases will require to be admitted to Stobhill Hospital, Glasgow. The person appointed will also undertake duties in Stobhill Hospital, but the extent of these will diminish as further beds are available in the Stirling/Falkirk area. The appointment is whole-time or with maximum part-time sessions. Applications (16 copies), stating date of birth, qualifications, experience, present appointment, and the names of three referees, to reach the Secretary, Western Regional Hospital Board, 351 Sauchiehall Street, Glasgow C.2, not later than 30 days after the publication of this advertisement. (9093)

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Lisle Street, Leicester Square, London W.C.1

Applications are invited for the post of
RESIDENT SENIOR HOUSE OFFICER
for the In-patient Department, with opportunities for work in the Out-patient Department. Applications, stating age, qualifications and experience, with names of two referees, should be sent to the Secretary of the Board not later than February 18, 1961. (9127)

GERIATRICS

WELSH REGIONAL HOSPITAL BOARD

WHOLE-TIME LOCUM TENENS CONSULTANT GERIATRICIAN
required Mid-Glamorgan H.M.C. Group, March 1, 1961, for approximately three months. Applications, naming two referees, to S.A.M.O., Temple of Peace, Cathays Park, Cardiff. (8951)

LEEDS REGIONAL HOSPITAL BOARD

Applications invited for the post of
REGISTRAR IN GERIATRICS
for duties in the Ilkley and Otley and Middleton and Grassington Groups of Hospitals (139 beds). Resident, single accommodation available. Applications, stating age, qualifications, and details of present and previous appointments (with dates), together with the names and addresses of three referees, to the Secretary, Joint Registrars Committee, Park Parade, Harrogate, by February 9, 1961. (8816)

BRIGHTON GENERAL HOSPITAL

Applications are invited for the post of
SENIOR HOUSE OFFICER
to the Geriatric Unit. Vacant mid-March. This is a large progressive unit with an active rehabilitation section, providing excellent clinical experience, and is under the direction of a Consultant Geriatrician. Applications, stating age, qualifications and experience, and giving the names of two referees, should be sent to the Physician Superintendent, Brighton General Hospital, Brighton. (8980)

Geriatrics—contd.

EXETER AND MID-DEVON HOSPITALS MANAGEMENT COMMITTEE

Exeter City Hospital, Exeter (260 beds)

SECOND SENIOR HOUSE OFFICER IN GERIATRIC MEDICINE

required at this hospital, which is the active treatment centre (105 beds) of the Clinical Area Geriatric Service, supervised by a Consultant and an Assistant Physician. This is a new non-resident appointment. Applications, giving full details and the names of two referees, to the Hospital Secretary immediately. (8981)

READING AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Applications are invited for the appointment of
SENIOR HOUSE OFFICER
to the Department of Geriatric Medicine at Battle Hospital, Reading, under the charge of a Consultant Geriatric Physician, vacant March 11, 1961, for periods up to one year. Further particulars may be obtained from the Group Secretary, 3 Craven Road, Reading, to whom applications, stating age, nationality, qualifications, experience, and names of three referees, should be addressed. (9116)

SUNDERLAND GROUP OF HOSPITALS (490 beds)

SENIOR HOUSE OFFICER

required for the Department of Medicine and Geriatric Medicine. The successful candidate will work under the direction of a full-time Consultant Physician. The unit affords suitable clinical experience for those seeking higher medical qualification. Salary and conditions of service according to Whitley Council recommendations. Apply, giving full details of qualifications and experience, and naming two referees, to the Hospital Secretary, General Hospital, Chester Road, Sunderland (8817)

INFECTIOUS DISEASES

NOTTINGHAM, HEATHFIELD HOSPITAL Hucknall Road, Nottingham (Infectious Diseases)

RESIDENT LOCUM MEDICAL OFFICER

(male or female) required for holiday period of four weeks, commencing Monday, February 20, 1961. Junior Hospital Medical Officer rate of £25 per week, less residential emoluments. Previous fever experience not essential. Applications, with copies of two recent testimonials, as soon as possible, to Physician Superintendent. (8503)

I.D. HOSPITAL, Hawkhead Road, Paisley

SENIOR HOUSE OFFICER or JUNIOR HOSPITAL MEDICAL OFFICER

required for post which became vacant on February 1, 1961. Resident post. Applications to Group Medical Superintendent, Royal Alexandra Infirmary, Paisley. (9145)

I.D. HOSPITAL, Hawkhead Road, Paisley

HOUSE PHYSICIANS

(pre-registration) required. Posts vacant February 1, 1961. Applications to Group Medical Superintendent, Royal Alexandra Infirmary, Paisley. (9144)

MEDICINE

NEWCASTLE REGIONAL HOSPITAL BOARD

CONSULTANT PHYSICIAN

whole-time or maximum part-time, for Darlington and Northallerton groups of hospitals. Applicants should have special experience and special interest in geriatrics, but acute medical beds will also be allocated to the consultant appointed. Main hospitals Darlington Memorial Hospital (313 beds), Friarage (341 beds). Population: Darlington 161,620; Northallerton 38,356. Further particulars from S.A.M.O. Applications, with names and addresses of three referees, to S.A.M.O., Newcastle Regional Hospital Board, Benfield Road, Newcastle upon Tyne 6, within 28 days. (8857)

HACKNEY HOSPITAL, London E.9 (General, 870 beds)

Applications for appointment as
LOCUM MEDICAL REGISTRAR
February 19 to April 15) should be sent to Secretary, above address, by February 10, quoting HH/MR. (9068)

HAMMERSMITH HOSPITAL AND POSTGRADUATE MEDICAL SCHOOL Du Cane Road, London W.12

RESIDENT MEDICAL OFFICER (Registrar grading)

required to assist the Medical Superintendent, together with Registrar functions in the Department of Medicine. Married quarters available. Further details concerning this appointment obtainable on application from the Secretary, Board of Governors, Hammersmith Hospital, Du Cane Road, London W.12. (9019)

NORTH MIDDLESEX HOSPITAL, London N.18

LOCUM REGISTRAR IN MEDICINE (General) required from February 15 to March 4, 1961, inclusive. Higher qualification in medicine desirable. Non-resident, but required to sleep in hospital on full duty nights (7 in 21). Applications, stating age, nationality, qualifications and experience, with copies of testimonials and the names of referees, to the Secretary of hospital. (9055)

NORTHERN IRELAND HOSPITALS AUTHORITY

APPOINTMENT OF REGISTRAR OR SENIOR REGISTRAR

Applications are invited for a whole-time post as Registrar or Senior Registrar in General Medicine at hospitals managed by the North Antrim and Coleraine and Portrush Hospital Management Committees. The national terms and conditions of service for hospital medical and dental staff will apply. Application to be made on a form obtainable (with further particulars) from the Secretary, Northern Ireland Hospitals Authority, 27 Adelaide Street, Belfast 2, and to be returned so as to be received not later than February 13, 1961. (8995)

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

RESIDENT MEDICAL REGISTRAR

required at Ashford Hospital, Ashford, Middlesex, for general medical unit. Post vacant early March, 1961. Hospital may be visited by direct appointment with Medical Director. Application forms obtainable from, and returnable to, Secretary, Staines Group Hospital Management Committee, Ashford Hospital, Ashford, Middlesex, by February 14, 1961. (9020)

QUEEN MARY'S HOSPITAL FOR CHILDREN Carshalton, Surrey (A general children's hospital of 550 beds)

LOCUM RESIDENT MEDICAL REGISTRAR

required from March 20, 1961, for approximately three months, to a firm comprising 180 beds, including acute medical (60 beds), poliomyelitis, rheumatism, and long-stay wards, and with certain medical administrative duties. Applications, in writing, to the Group Secretary immediately. (8858)

RUSH GREEN HOSPITAL, Romford, Essex (301 beds)

LOCUM MEDICAL REGISTRAR

required (male or female) from March 13 to April 10, 1961. Resident post. Applications, quoting Ref. 17/76, with names of two referees, to the Group Secretary, Romford H.M.C., Oldchurch Road, Romford. (8818)

SHEFFIELD REGIONAL HOSPITAL BOARD

Mansfield Group of Hospitals

WHOLE-TIME RESIDENT REGISTRAR (General Medicine and Paediatrics)

required April 1. Appointment for one year in first instance. This is one of two medical Registrar posts in the Group. Candidates should have previous paediatric experience, as duties involve care of a premature baby unit. Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, by February 13, 1961, giving age, nationality, qualifications, present and previous appointments (with dates), naming three referees. (8819)

THE ROYAL FREE HOSPITAL Gray's Inn Road, W.C.1

MEDICAL REGISTRAR (Two posts)

(non-resident) from April 1, 1961, for one year in the first instance, at the Lawn Road Branch of the above hospital. A higher qualification is desirable, but not essential. Applications, giving details of experience and names of three referees, should be sent to the Secretary to the Board of Governors not later than February 11, 1961. (8726)

UNITED MANCHESTER HOSPITALS

Manchester Royal Infirmary, Manchester 13

RESIDENT MEDICAL OFFICER (Registrar grade) to commence as soon as possible. Whole-time, resident appointment for 12 months, renewable. Applicants should have held house appointments and have had medical experience. Application form, obtainable from the Secretary, Manchester Royal Infirmary, Oxford Road, Manchester 13, must be returned not later than February 14, 1961. (9098)

WELSH REGIONAL HOSPITAL BOARD

REGISTRAR IN GENERAL MEDICINE

Morriston Hospital, Morriston, near Swansea. Resident. Subject to review end of first year. Application forms from S.A.M.O., Temple of Peace, Cathays Park, Cardiff, within 14 days. (8947)

DONCASTER HOSPITAL MANAGEMENT COMMITTEE

Western Hospital, Doncaster

Applications are invited from registered medical practitioners for the appointment of
RESIDENT MEDICAL OFFICER
in the grade of Junior Hospital Medical Officer. Applications to the Group Secretary, Doncaster Royal Infirmary. (8859)

BARROW AND FURNESS HOSPITAL MANAGEMENT COMMITTEE

North Lonsdale Hospital

SENIOR HOUSE OFFICER (Medical)

Applications are invited for the resident post of Senior House Officer (Medical) at the North Lonsdale Hospital, Barrow-in-Furness. Available early March. Applications to the Group Secretary, 105 Abbey Road, Barrow-in-Furness. (8711)

BRISTOL—COSSHAM AND FRENCHAY HOSPITAL MANAGEMENT COMMITTEE

Frenchay Hospital (522 beds)

Applications are invited for the post of
SENIOR HOUSE OFFICER (Medical)
The appointment, which will be for one year in the first instance, is on the terms and conditions of service for hospital medical staff. Unmarried accommodation provided at the hospital. The candidate appointed will have general supervision under the Consultant staff of the beds for general medicine, and will be attached as a clinical assistant for occasional duties which may be required in the Regional Department of Neurosurgery, Thoracic Surgery and Plastic Surgery at the hospital. As the Senior Resident Medical Officer he will be in charge of the "House," and his duties will include pre-employment medical examinations of staff appointed by the Management Committee. It is customary for the resident nursing staff to be invited to register on the patients' panel of the Senior Resident Medical Officer, who is entitled to retain the appropriate fees receivable. Applications, containing details of qualifications and experience, together with the names of two referees, should be forwarded to the Group Secretary, Frenchay Hospital, Bristol. (9054)

DONCASTER HOSPITAL MANAGEMENT COMMITTEE

HOUSE PHYSICIAN

(Senior House Officer) required between Western Hospital, Doncaster, and Doncaster Royal Infirmary. Resident at Western Hospital. Applications to the Group Secretary at Doncaster Royal Infirmary. (8504)

EXETER AND MID-DEVON HOSPITALS MANAGEMENT COMMITTEE

City Hospital, Gladstone Road, Exeter (260 beds)

Applications are invited from registered medical practitioners for the appointment of
RESIDENT SENIOR HOUSE OFFICER IN MEDICINE
vacant February 24, 1961. The appointed officer will act as House Physician to a medical unit of 31 beds. Applications to be sent to the Hospital Secretary immediately. (8206)

GENERAL HOSPITAL, Rochford (620 beds)

LOCUM SENIOR HOUSE OFFICER (General Medicine)

required from February 15 to 28, 1961. Applications, stating age, etc., with copies of recent testimonials, to reach the Secretary as soon as possible. (8967)

NEW CROSS HOSPITAL, Wolverhampton (634 beds)

SENIOR HOUSE OFFICER (Medical)

Vacant February. Applications to the Hospital Secretary. (8479)

NOTTINGHAM CITY HOSPITAL (811 beds)

Applications are invited for the post of
SENIOR HOUSE OFFICER (Medical)
Post vacant March 13, 1961. Applications, stating age, nationality, qualifications and experience, together with copies of two testimonials, should be sent to the Hospital Secretary, City Hospital, Hucknall Road, Nottingham. (9035)

SUNDERLAND GROUP OF HOSPITALS (490 beds)

SENIOR HOUSE OFFICER

required for the Department of Medicine and Geriatric Medicine. The successful candidate will work under the direction of a full-time Consultant Physician. The unit affords suitable clinical experience for those seeking higher medical qualification. Salary and conditions of service according to Whitley Council recommendations. Apply, giving full details of qualifications and experience, and naming two referees, to the Hospital Secretary, General Hospital, Chester Road, Sunderland. (8820)

Medicine—contd.

SHREWSBURY HOSPITAL GROUP

Royal Salop Infirmary/Copthorne Hospital (500 beds)

HOUSE PHYSICIAN

Senior House Officer or pre-registration candidates eligible. Acute general medicine only. No casualty duties. Vacant February 25, 1961. Applications, with copy testimonials, to Group Secretary, Copthorne Hospital, Shrewsbury. (8860)

SOUTH SHIELDS GENERAL HOSPITAL

HOUSE PHYSICIAN

(pre-registration or S.H.O., according to experience) required mid-February, 1961, in this busy, well-equipped hospital. Resident staff in Medical Department consists of a Medical Registrar and three House Officers. Applications, in writing, to Medical Superintendent. (8717)

THE LEICESTER ROYAL INFIRMARY

Applications are invited for the Pre-registration/Senior House Officer post of

RESIDENT HOUSE PHYSICIAN

vacant April 1, 1961. Establishment of one Senior Registrar, one Registrar, and two House Physicians. Applications, stating age, qualifications and experience, together with copies of recent testimonials, to Group Secretary, Leicester No. 1 Hospital Management Committee, by February 8, 1961. (8548)

UNITED OXFORD HOSPITALS

Slade Hospital, Oxford (80 beds)

SENIOR HOUSE OFFICER

(Assistant R.M.O.). Post provides experience in Infectious Diseases, Acute Chest Diseases, and Dermatology. Excellent opportunity for study and postgraduate experience. Applications, on forms obtainable from the Administrator, Radcliffe Infirmary, Oxford, should be submitted not later than February 11, 1961. (8505)

VICTORIA HOSPITAL, Deal

Applications are invited for the appointment of

SENIOR RESIDENT MEDICAL OFFICER

which will become vacant in March, 1961. The post will be tenable for a year, and provides excellent experience for persons intending to enter general practice. There is a regular Consultant visiting staff for all branches of medicine and surgery. Married accommodation available. Salary £1,050 to £1,100 a year, less a deduction of £180 a year for residential emoluments. Applications, giving details of age, qualifications and experience, together with the names and addresses of two referees, should be made to the Group Secretary, South-East Kent Hospital Management Committee, "Ash-Eton," Radnor Park West, Folkestone. (8821)

WHITTINGTON HOSPITAL, London N.19

Applications are invited for the post of

SENIOR HOUSE OFFICER (General Medicine)

Vacant March 1. Application forms obtainable from Group Secretary, 46 Cholmeley Park, N.6 (ARC 3070, Ext. 526), and returnable to Medical Superintendent by February 13. (8861)

EPSOM DISTRICT HOSPITAL

Dorking Road, Epsom, Surrey

RESIDENT HOUSE PHYSICIAN

required March 1, 1961. Pre-registration post. Applications, stating age, qualifications and experience, with copies of two recent testimonials, should be sent, as soon as possible, to Group Secretary at above address. (8463)

GENERAL HOSPITAL, Margate (118 beds)

HOUSE PHYSICIAN

Approved pre-registration post. Salary at the rate of £675 to £825 per annum, according to experience, less £155 to £165 for residential emoluments. Applications, with copies of testimonials, to Hospital Secretary. (8508)

GERMAN HOSPITAL, London E.8

(General, 157 beds)

Applications for the six months' resident appointment, vacant March 1, of

REGISTERED HOUSE PHYSICIAN

should reach Group Secretary, Hackney Hospital, E.9, by February 13, quoting GH/HP. (9069)

HUNTINGDON COUNTY HOSPITAL

Huntingdon

Applications are invited for the post of

HOUSE OFFICER (Medical)

Post is recognized for pre-registration purposes. The selected candidate will be required to look after medical and paediatric cases, and may be called upon to give emergency anaesthetics. Quarters can be made available for a married man. Apply, with full particulars and names of two referees, to Secretary, County Hospital, Huntingdon. (9052)

KING EDWARD VII HOSPITAL, Windsor

HOUSE PHYSICIAN

required, male or female, for post vacant February 28. Pre-registration post. Applications, with copies of three recent testimonials, stating age, qualifications (with dates), and nationality, to Secretary. (8549)

MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE

Sheppey General Hospital, Minster, Isle of Sheppey, Kent

HOUSE PHYSICIAN

Applications are invited for this pre-registration post, vacant February 14. Salary according to experience, £675 to £825 per annum, less charge for residence. Please apply to Hospital Secretary, stating age, qualifications, nationality, experience, and names of two referees. (8759)

MILE END HOSPITAL

Bancroft Road, London E.1 (476 beds)

HOUSE PHYSICIAN

(Pre- or post-registration) Post vacant March 1, 1961. Application forms, obtainable from Physician Superintendent, to be returned by February 14, 1961, with copies of not more than three testimonials. (8942)

NEW CROSS HOSPITAL, Wolverhampton

(634 beds)

HOUSE PHYSICIAN (Medical)

Acute medical beds. Recognized for pre-registration purposes. Vacant February. Applications to the Hospital Secretary. (8480)

NORTH WIRRAL HOSPITAL MANAGEMENT COMMITTEE

Victoria Central Hospital Medical Unit, Mill Lane, Wallasey

Applications are invited for the following appointment from March 1, 1961, for a period of six months:

ONE RESIDENT HOUSE PHYSICIAN

(Pre-registration post). Salary £675, £750, £825, according to experience, less £155, £160, £165 per annum for board, lodgings, etc. Terms and conditions of service are in accordance with the regulations of the Ministry of Health. Applications, giving details of age, nationality, qualifications and experience, together with names and addresses of three persons for reference, to the Hospital Secretary. (8956)

QUEEN MARY'S HOSPITAL, Sidcup, Kent

HOUSE OFFICER (Physician)

required from March 1, 1961, for six months. Pre- or post-registration. Applications, giving full details, together with names and addresses of two referees, should be sent to the Secretary. (9046)

ROYAL BERKSHIRE HOSPITAL, Reading

Applications are invited from registered and provisionally registered medical practitioners for two posts as

RESIDENT HOUSE PHYSICIAN

vacant March 1, 1961, and tenable for six months. Write, stating age, qualifications (with dates), nationality, present post, with copies of two recent testimonials, to Secretary. (8768)

ROYAL HALIFAX INFIRMARY

HOUSE PHYSICIAN

required. Post vacant February 1, 1961. Pre-registration appointment. Applications to Group Secretary, Royal Halifax Infirmary, Halifax. (8973)

ST. ALFEGE'S HOSPITAL, Greenwich, S.E.10

(593 beds)

HOUSE PHYSICIAN

Vacant March 1. Six months' appointment. National salary and conditions. Write, with testimonials, to Group Secretary, G. and D. H.M.C., at hospital. (9070)

ST. MARGARET'S HOSPITAL, Epping

(436 beds)

Applications invited for the resident post of

HOUSE PHYSICIAN

(pre- or post-registration) in general medicine. Six months' appointment as from March 1, 1961. Applications, with copies of two recent testimonials, to reach the Group Secretary, Epping Group H.M.C., "Oak Cottage," The Plain, Epping, Essex, by February 10, 1961. (8481)

ST. MARGARET'S HOSPITAL, Epping

(436 beds)

Applications invited for the resident post of

HOUSE PHYSICIAN

(post-registration) in general medicine. Six months' appointment as from March 1, 1961. Applications, with copies of two recent testimonials, to reach the Group Secretary, Epping Group H.M.C., "Oak Cottage," The Plain, Epping, Essex, by February 10, 1961. (8464)

SOUTH LONDON HOSPITAL FOR WOMEN AND CHILDREN, Clapham Common, S.W.4

Applications are invited from pre-registration and registered women medical practitioners for the post of

HOUSE PHYSICIAN

Vacant March 1, 1961. Forms of application from the Secretary. (8862)

NEUROLOGY

THE NATIONAL HOSPITALS FOR NERVOUS DISEASES

Applications are invited from registered medical practitioners for the appointment of

SENIOR RESIDENT HOUSE PHYSICIAN

at the National Hospital, Queen Square, W.C.1, to commence April 1, 1961. This post carries the grade of Registrar. The appointment will be for one year and will be renewed in exceptional circumstances. Applications, with names of three referees, to be sent to the undersigned not later than February 10, 1961.—Geoffrey A. Robinson, Secretary to the Board of Governors, the National Hospitals for Nervous Diseases, Queen Square, London, W.C.1. (8662)

THE UNITED SHEFFIELD HOSPITALS

Applications are invited for the post of

REGISTRAR

to the Department of Neurology at the Royal Hospital. This is a large Neurological Department in a Teaching Hospital Group. Post offers wide experience and opportunities for postgraduate training and for attending postgraduate teaching in other departments. Applications, stating age, qualifications and experience, with names of three referees, should be sent, not later than February 11, 1961, to Chief Administrative Officer, United Sheffield Hospitals, West Street, Sheffield 1. (8737)

NEUROSURGERY

THE UNITED OXFORD HOSPITALS

CONSULTANT NEUROLOGICAL SURGEON

Applications are invited for the appointment of Assistant Surgeon in the Department of Neurological Surgery, on the basis of whole-time or maximum part-time service in the United Oxford Hospitals. The successful candidate will be the second of two consultants in the neurosurgical team. Applications (12 copies), stating age, qualifications, present and past experience, together with the names of three referees, should be submitted before February 25, 1961, to the Administrator, Radcliffe Infirmary, Oxford, from whom further particulars may be obtained. (8801)

THE UNITED SHEFFIELD HOSPITALS

Applications are invited for the post of

REGISTRAR IN NEUROSURGERY

at the Royal Infirmary, Sheffield. Applications, stating age, nationality, qualifications, present and previous appointments (with dates), naming three referees, to Chief Administrative Officer, United Sheffield Hospitals, West Street, Sheffield 1, not later than February 11, 1961. (8736)

SUNDERLAND GENERAL HOSPITAL

Department of Neurological Surgery

Applications are invited for the post of

SENIOR HOUSE OFFICER

(resident) on the above well-equipped unit, which is part of a large active general hospital. The post is suitable for a candidate seeking experience in medical and surgical neurology. Post vacant end of February, 1961. Applications, together with the names and addresses of two referees, should be sent to the Hospital Secretary, the General Hospital, Chester Road, Sunderland. (8822)

OBSTETRICS AND GYNAECOLOGY

LEEDS REGIONAL HOSPITAL BOARD

Applications invited for the post of

REGISTRAR IN OBSTETRICS AND GYNAECOLOGY

St. Luke's Hospital, Bradford (113 obstetric and 84 gynaecological beds). Resident, single accommodation available. Recognized for M.R.C.O.G. and D.Obst.R.C.O.G. Vacant April 1, 1961. Applications, stating age, qualifications, and details of present and previous appointments (with dates), together with the names and addresses of three referees, to the Secretary, Joint Registrars Committee, Park Parade, Harrogate, by February 9, 1961. (8823)

IMPORTANT: All intending applicants should read the revised NOTICE at the top of page 46

Obstetrics and Gynaecology—contd.

CHELMSFORD HOSPITAL MANAGEMENT COMMITTEE

LOCUM RESIDENT REGISTRAR IN OBSTETRICS

required for three weeks from March 22, at St. John's Hospital, Chelmsford. Apply Secretary, Chelmsford Hospital Management Committee, London Road, Chelmsford. (8465)

NEWCASTLE REGIONAL HOSPITAL BOARD

REGISTRAR OBSTETRICIAN AND GYNAECOLOGIST

whole-time, resident, for North-West Durham group of hospitals. Main hospitals Shotley Bridge General (41 gynaecological beds), Richard Murray (36 obstetric beds). Post recognized by College for gynaecology only. Singe accommodation available. Applications, with names and addresses of three referees, to Senior Administrative Medical Officer, Newcastle Regional Hospital Board, Benfield Road, Newcastle upon Tyne 6, within 14 days. (8863)

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

Barnet General Hospital, Wellhouse Lane, Barnet, Herts (461 beds)

REGISTRAR IN OBSTETRICS AND GYNAECOLOGY

required. Post vacant March 6. Recognized for M.R.C.O.G. (Obstetrics). Hospital may be visited by direct appointment. Application forms obtainable from, and returnable to, Group Secretary, Barnet Group Hospital Management Committee, by February 21. (9083)

ST. THOMAS' HOSPITAL, London S.E.1

RESIDENT REGISTRAR

to the Department of Obstetrics and Gynaecology

for one year in the first instance from June 13, 1961. Applications, naming two referees, to Clerk of the Governors by February 28, 1961. (8941)

THE UNITED NEWCASTLE UPON TYNE HOSPITALS

Applications are invited for the post of

REGISTRAR

in the Department of Obstetrics and Gynaecology. The successful candidate will have duties in the Royal Victoria Infirmary and the Princess Mary Maternity Hospital (resident). The appointment is recognized for examination purposes by the Royal College of Obstetricians and Gynaecologists. The appointment is for one year in the first instance, and will be subject to the terms and conditions of service of hospital medical staff in the National Health Service. Applications, giving full details and the names and addresses of three referees, should be sent to the House Governor and Secretary, Royal Victoria Infirmary, Newcastle upon Tyne 1, within two weeks of the appearance of this advertisement. (8983)

WESTERN REGIONAL HOSPITAL BOARD

Applications are invited for the following appointment, which will be for one year in the first instance:

SENIOR REGISTRAR IN OBSTETRICS AND GYNAECOLOGY

at the Royal Maternity Hospital and Western Infirmary, Glasgow. Applications (12 copies), stating date of birth, qualifications, experience, present appointment, and the names of three referees, to reach the Secretary, Western Regional Hospital Board, 351 Sauchiehall Street, Glasgow C.2, by February 11, 1961. (9034)

DARTFORD, THE WEST HILL HOSPITAL

SENIOR HOUSE OFFICER
(Obstetrics and Gynaecology)

required from March 21, 1961. The post is recognized for the M.R.C.O.G. Applications should be sent to the Group Secretary, Dartford Hospital Management Committee, the Bow Arrow Hospital, Dartford, Kent. (8864)

HARTLEPOOLS HOSPITALS MANAGEMENT COMMITTEE

Cameron Hospital, West Hartlepool

SENIOR OR PRE-REGISTRATION HOUSE OFFICER (Obstetrics)

required for six months, to commence duty mid-March. The post is recognized for the M.R.C.O.G. and D.(Obst.)R.C.O.G. examinations. Applications, giving details of age, nationality, experience and qualifications, with copies of two recent testimonials, should be addressed to the Group Secretary, Hartlepools Hospitals Management Committee, the General Hospital, West Hartlepool. (9099)

HITCHIN HOSPITALS, Hitchin, Herts

SENIOR HOUSE OFFICER IN OBSTETRICS AND GYNAECOLOGY

required February 27, 1961, at the North Herts Hospital (58 obstetric beds) and Lister Hospital (27 gynaecological beds), for one year. Post recognized for the D.Obst.R.C.O.G. Applications to the Medical Administrator, Lister Hospital, Hitchin, as soon as possible. (8473)

NORTH STAFFORDSHIRE ROYAL INFIRMARY, Stoke-on-Trent
Gynaecology Department

SENIOR HOUSE OFFICER

required. Post vacant shortly. Recognized for M.R.C.O.G. (Surgery). Experience in abnormal obstetrics available, but the work is mainly gynaecological. A six weeks' postgraduate course has recently been completed, and it is proposed to hold similar courses in future. Detailed applications, with copy testimonials, to Hospital Secretary. (8382)

ROYAL SUSSEX COUNTY HOSPITAL (312 beds)

HOUSE SURGEON

(S.H.O.) required for new post, with duties approximately half-time gynaecology and half-time casualty. Applications, giving details of age, education, previous experience, etc., together with names of two referees, to the Administrative Officer, Royal Sussex County Hospital, Brighton 7. (9107)

ST. HELEN HOSPITAL, Barnsley

Applications are invited for the post of

SENIOR HOUSE OFFICER
(Obstetrics and Gynaecology)

for a department of 69 Obstetrical and 30 Gynaecological beds. The post is recognized for M.R.C.O.G. in Obstetrics and Gynaecology. Applications should be sent to the Group Secretary, Barnsley H.M.C., 33 Gawber Road, Barnsley, as soon as possible. (8510)

ST. HELENS AND DISTRICT H.M.C.

Whiston Hospital, Prescot (892 beds)
(Obstetrical Unit 74 beds)

SENIOR HOUSE OFFICER
(Obstetrics and Gynaecology)

Applications are invited for the above resident post, which is recognized for the M.R.C.O.G. and D.Obst.R.C.O.G. examinations. Previous obstetrical and gynaecological experience is essential. Applications, stating age, qualifications and experience, and giving two names for reference, should be forwarded to N. Richards, Group Secretary, Whiston Hospital, Prescot, Lancs. (9128)

ST. PETER'S HOSPITAL, Chertsey, Surrey
(late Botleys Park War Hospital) (415 beds)

RESIDENT GYNAECOLOGICAL HOUSE SURGEON

(S.H.O. or intern) (24 beds). Salary in accordance with terms and conditions of National Health Service. Applications, together with names and addresses of two referees, to Physician Superintendent. Post vacant March 21, 1961. (9050)

BRITISH HOSPITAL FOR MOTHERS AND BABIES, Samuel Street, S.E.18

OBSTETRICAL HOUSE OFFICER

Vacant early March. Recognized for D.Obst R.C.O.G. and M.R.C.O.G. Apply to Group Secretary, Memorial Hospital, Woolwich, S.E.18. (8648)

CHESTER AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Chester City Hospital

Applications are invited for two

RESIDENT HOUSE SURGEON

posts in the Obstetrical and Gynaecological Department, vacant April 9 and 21, 1961. Both posts are recognized for D.Obst.R.C.O.G. Applications, giving full details, together with the names and addresses of two referees, should be forwarded to the Hospital Secretary. (9119)

CRAIGTOUN MATERNITY HOSPITAL
By St. Andrews (51 beds)

HOUSE SURGEON

required for duty commencing April 1, 1961. The post is recognized for the D.Obst.R.C.O.G. Whitley salary scales. Apply in writing, giving names of two referees, to the Medical Superintendent, East Fife Hospitals Board of Management, 243A High Street, Kirkcaldy, Fife. (9038)

CROYDON GROUP HOSPITAL MANAGEMENT COMMITTEE

St. Mary's Maternity Hospital (33 beds)

HOUSE OFFICER (Obstetrics)

Post recognized for D.(Obst.)R.C.O.G. Vacant March 2. Application forms, from Group Secretary, Croydon General Hospital, to be returned by February 10. (8825)

HOSPITAL OF ST. JOHN AND ST. ELIZABETH
60 Grove End Road, London N.W.8

Applications are invited from pre-registration or registered medical practitioners (male) for the appointment of

HOUSE SURGEON

to the Midwifery and Gynaecological Departments, to become vacant on Wednesday, February 15, 1961. Appointment will be for a period of six months. National Health Service salary. Applications to reach the Secretary on or before Monday, February 13, together with copies of three recent testimonials. (9129)

HACKNEY HOSPITAL, London E.9
(General, 870 beds)

Applications are invited from registered medical practitioners for two resident six months' appointments, vacant March 21 and June 1, of

HOUSE SURGEONS (Obstetrics and Gynaecology)

(Posts recognized for D.Obst.R.C.O.G. and M.R.C.O.G.) Apply Secretary, above address, by February 11, quoting HH/HSO. (9071)

ISLE OF WIGHT GROUP HOSPITAL MANAGEMENT COMMITTEE

St. Mary's Hospital, Newport, I.W.

OBSTETRIC HOUSE OFFICER

(post-registration) required. Post vacant March 12, 1961. Married accommodation available. Post recognized for Diploma in Obstetrics. Salary at the rate of £825 per annum. Applications, with names of two referees, to Hospital Secretary immediately. (8784)

KING'S LYNN AREA HOSPITALS MANAGEMENT COMMITTEE

West Norfolk and King's Lynn General Hospital (161 beds)

Applications are invited from medical practitioners (fully or provisionally registered) for the post of

RESIDENT HOUSE SURGEON
(Obstetrics/Gynaecology)

at the above hospital. Appointment for six months in the first instance. Post vacant mid-March. Eleven residents employed. Applications, with names and addresses of two referees, to be forwarded to the Group Secretary, St. James' Hospital, King's Lynn, Norfolk. (8512)

LEICESTER GENERAL HOSPITAL

Applications are invited for the pre-registration post (resident) of

OBSTETRIC AND GYNAECOLOGICAL HOUSE SURGEON

Vacant April 10, 1961. Recognized for the M.R.C.O.G. (Obstetrics only) and D.Obst.R.C.O.G. Applications, stating age, qualifications and experience, together with copies of recent testimonials, to Group Secretary, Leicester No. 1 Hospital Management Committee, the Leicester Royal Infirmary, by February 16, 1961. (8826)

MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE

Gravesend and North Kent Hospital, Gravesend, Kent

HOUSE SURGEON (Obstetric and Gynaecology) required for post vacant beginning of February. Recognized for pre-registration purposes. Salary £575 to £825 per annum, according to experience, less charge for residence. Applications to Hospital Secretary, stating age, experience, qualifications, nationality, and the names of two referees (8761)

THE UNITED BIRMINGHAM HOSPITALS

The Birmingham Maternity Hospital

Applications are invited from registered medical practitioners for the post of

RESIDENT OBSTETRIC HOUSE SURGEON

on March 1, 1961. The appointment is recognized for the M.R.C.O.G. and D.Obst.R.C.O.G. Application forms, obtainable from the House Governor, the Birmingham and Midland Hospitals for Women, Showell Green Lane, Birmingham 11, to be returned immediately.—G. A. Phalp, Secretary. (9053)

WANDSWORTH HOSPITAL GROUP

St. James' Hospital, Balham, London S.W.12

HOUSE SURGEON (Gynaecology)

required. Applications, stating age, qualifications, experience, and two referees, to Group Secretary at above address. (8943)

WEST FIFE HOSPITALS BOARD OF MANAGEMENT

Maternity Hospital, Dunfermline (56 beds)

Applications are invited for the post of

OBSTETRICAL HOUSE OFFICER

(resident) to commence March 15, 1961. Hospital recognized for R.C.O.G. Applications, giving names of three referees, should be lodged with the Medical Superintendent. (9024)

OPHTHALMOLOGY

EAST ANGLIAN REGIONAL HOSPITAL BOARD

OPHTHALMIC REGISTRAR

West Norfolk and King's Lynn General Hospital, King's Lynn (161 beds). Appointment for one year, renewable for second year. Applications, stating age, experience, and names of three referees, to S.A.M.O., 117 Chesterton Road, Cambridge, by February 20, 1961. Candidates invited to visit hospitals by direct arrangement with H.M.C. Secretary, St. James' Hospital. (8827)

Ophthalmology—contd.

NORTHERN IRELAND HOSPITALS AUTHORITY

APPOINTMENT OF REGISTRAR OR SENIOR REGISTRAR

Applications are invited for a whole-time post as Registrar or Senior Registrar in Ophthalmology based at the Belfast Group of hospitals for the period ending July 31, 1961. The national terms and conditions of service for hospital medical and dental staff will apply. Applications to be made on a form obtainable (with further particulars) from the Secretary, Northern Ireland Hospitals Authority, 27 Adelaide Street, Belfast 2, and to be returned not later than February 13, 1961. (8992)

OXFORD REGIONAL HOSPITAL BOARD

REGISTRAR IN OPHTHALMOLOGY

resident or non-resident, to Northampton General Hospital. A department of 32 beds was recently opened. Applications, on forms obtainable from the Secretary, Registrars Committee, 43 Banbury Road, Oxford, should reach him by February 11. (8564)

WELSH REGIONAL HOSPITAL BOARD

SENIOR REGISTRAR IN OPHTHALMOLOGY

Glantawe H.M.C. Based at Swansea Hospital (412 beds). Hospital recognized for F.R.C.S. and D.O. examinations. Non-resident. It is desirable that candidates should have passed the primary F.R.C.S. examination. Subject to review annually. Application forms from S.A.M.O., Temple of Peace and Health, Cathays Park, Cardiff, within 14 days. (8948)

NORTHAMPTON GENERAL HOSPITAL (536 beds)

Vacancy middle February for

SENIOR HOUSE OFFICER

Department of Ophthalmology. Recognized for F.R.C.S. Appointment to September 30, 1961, in first instance. Applications, with copies of two testimonials, as soon as possible, to S. G. Hill, Superintendent. (8515)

ROYAL BUCKINGHAMSHIRE HOSPITAL Aylesbury, Bucks

OPHTHALMIC HOUSE SURGEON

(House Officer or Senior House Officer grade, according to experience). Post, which will be vacant at beginning of April, is recognized for D.O. Apply, with two names for reference, to Secretary-Superintendent. (8828)

SOUTHAMPTON EYE HOSPITAL (32 beds. Recognized for D.O. and F.R.C.S. examinations)

RESIDENT SENIOR HOUSE OFFICER

required. Post vacant March 3, 1961. Applications, with copies of testimonials, to be forwarded to the Group Secretary, Southampton Group Hospital Management Committee, Tremona Road, Southampton. (8751)

THE ROYAL EYE AND EAR HOSPITAL Bradford 1

SENIOR HOUSE SURGEON (Ophthalmology)

required March 23, 1961. Post recognized for D.O.M.S. and F.R.C.S. Applications, stating age, nationality, with copy testimonials, to the Secretary, Bradford Royal Infirmary, Bradford 9. (8271)

THE UNITED CARDIFF HOSPITALS

Applications are invited for the appointment of

SENIOR HOUSE OFFICER IN OPHTHALMOLOGY

at the Cardiff Royal Infirmary. Non-resident appointment, to commence as soon as possible. Application forms are available from the Acting Secretary, United Cardiff Hospitals, Cardiff Royal Infirmary, Newport Road, Cardiff, and should be returned within 14 days of the appearance of this advertisement (9025)

UNITED MANCHESTER HOSPITALS

Manchester Royal Eye Hospital

Applications are invited for the post of

SENIOR HOUSE OFFICER

Application forms may be obtained from the undersigned.—R. D. Amos, Assistant Secretary. (8671)

WEST WALES HOSPITAL MANAGEMENT COMMITTEE

West Wales General Hospital, Carmarthen (280 beds)

HOUSE OFFICER (Ophthalmology)

Applications are invited for the above post, which is vacant on February 1, 1961, for a six-month period. Salary and conditions of service as laid down by the Ministry of Health. Applications, stating age, qualifications, experience, and nationality, with the names and addresses of three referees, to the Group Secretary, West Wales Hospital Management Committee, Glangwili, Carmarthen. (8829)

ORTHOPAEDICS

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

TWO CONSULTANT ORTHOPAEDIC AND TRAUMATIC SURGEONS

Bedford General Hospital (424 beds). Initially whole-time, option to transfer to maximum part-time after three years. Besides orthopaedic work, appointments will include responsibility for casualty department and will initially be associated also with the Accident Service of Luton and Hitchin Group. Hospital may be visited by direct appointment. Application forms, with further particulars, obtainable from Secretary, North-West Metropolitan Regional Hospital Board, 40 Eastbourne Terrace, W.2. Returnable before March 6, 1961. (9084)

WESTERN REGIONAL HOSPITAL BOARD

Applications are invited for the following appointment:

CONSULTANT ORTHOPAEDIC SURGEON

for duties mainly at Stonehouse Hospital, Stonehouse, Lanarkshire, but having an attachment to the Orthopaedic Department at Law Hospital, Carluke. The appointment is whole-time or with maximum part-time sessions. Applications (16 copies), stating date of birth, qualifications, experience, present appointment, and the names of three referees, to reach the Secretary, Western Regional Hospital Board, 351 Sauchiehall Street, Glasgow C.2, not later than 30 days after the publication of this advertisement. (9095)

EAST ANGLIAN REGIONAL HOSPITAL BOARD

ORTHOPAEDIC REGISTRAR

West Norfolk and King's Lynn General Hospital, and St. James' Hospital, King's Lynn. Furnished house or single quarters available. Appointment for one year, renewable for second year. Applications, stating age, experience, and names of three referees, to S.A.M.O., 117 Chesterton Road, Cambridge, by February 20, 1961. Candidates invited to visit hospitals by direct arrangement with H.M.C. Secretary, St. James' Hospital. (8830)

NORTHERN IRELAND HOSPITALS AUTHORITY

APPOINTMENT OF REGISTRAR OR SENIOR REGISTRAR

Applications are invited for a whole-time post as Registrar or Senior Registrar in Orthopaedic Surgery at hospitals managed by the North-West Hospital Management Committee. The national terms and conditions of service for hospital medical and dental staff will apply. Application to be made on a form obtainable (with further particulars) from the Secretary, Northern Ireland Hospitals Authority, 27 Adelaide Street, Belfast 2, and to be returned so as to be received not later than February 13, 1961. (8994)

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

SURGICAL REGISTRAR

required at Ashford Hospital, Ashford, Middlesex (560 beds), for traumatic and orthopaedic surgery. Post vacant March 18, 1961. Hospital may be visited by direct appointment with the Medical Director. Application forms obtainable from, and returnable to, the Secretary, Ashford Hospital, Ashford, Middlesex, by February 14, 1961. (9086)

ROCHDALE AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

LOCUM REGISTRAR (Orthopaedic)

required immediately. Married furnished accommodation available. Apply Group Secretary, Birch Hill Hospital, Rochdale. (8038)

BECKETT HOSPITAL, Barnsley

SENIOR HOUSE OFFICER (Orthopaedics)

Applications are invited from registered medical practitioners, either sex, for the post of Senior House Officer (Orthopaedics). This is a post offering excellent experience in a busy, well-equipped hospital of 200 beds with a large out-patient department and usual ancillary services. Applications, giving full particulars, should be sent to the Group Secretary, Barnsley H.M.C., 33 Gawber Road, Barnsley, as soon as possible. (8785)

DARTFORD HOSPITAL MANAGEMENT COMMITTEE

SENIOR HOUSE OFFICER (Specialty Orthopaedics)

required for Joyce Green Hospital, Dartford. The post is recognized for the F.R.C.S. Applications, with full particulars, to be sent to the Group Secretary, Dartford Hospital Management Committee, the Bow Arrow Hospital, Dartford, Kent. (8865)

GRIMSBY HOSPITAL MANAGEMENT COMMITTEE

Grimsby General Hospital

Applications are invited for the post of

S.H.O. (Orthopaedic)

Orthopaedic unit of 58 beds. Resident establishment, Registrar and two House Officers. Up-to-date medical library and reading facilities available. Married accommodation may be available. Applications, with names of two referees, to Hospital Secretary. (8786)

HARTLEPOOLS HOSPITALS MANAGEMENT COMMITTEE

Hartlepools Hospital, Friar Street, Hartlepool

HOUSE OFFICER (Senior or pre-registration) (Orthopaedics and Casualty) Recognized for F.R.C.S.

Applications are invited for the above appointment, vacant end February, and candidates should apply to the Group Secretary, at the General Hospital, West Hartlepool, as soon as possible, stating age, nationality, and qualifications (with dates), and accompanied by two testimonials. Accommodation available also for wife. (9100)

MERTHYR AND ABERDARE HOSPITAL MANAGEMENT COMMITTEE

St. Tydfil's Hospital, Merthyr Tydfil (330 beds)

RESIDENT SENIOR HOUSE OFFICER (Traumatic and Orthopaedic Surgery)

Resident staff of six. Apply, with full particulars and copies of two recent testimonials, to Group Secretary, St. Tydfil's Hospital, Merthyr Tydfil. (8866)

PORTSMOUTH GROUP HOSPITAL MANAGEMENT COMMITTEE

Royal Portsmouth Hospital (254 beds) Orthopaedics (104 orthopaedic beds)

SENIOR HOUSE SURGEON

required for the Orthopaedic Department. Vacant March 16, 1961. The post offers wide experience in both traumatic and orthopaedic work, and is recognized for the F.R.C.S. Applications, stating age, experience and qualifications, together with the names of two referees, should be forwarded as soon as possible.—L. C. Rogers, Group Secretary, Saint Mary's Hospital, Milton Road, Portsmouth. (8474)

PRESTON AND CHORLEY HOSPITAL MANAGEMENT COMMITTEE

Preston Royal Infirmary (413 beds)

SENIOR HOUSE OFFICER IN ORTHOPAEDICS

required. Recognized for F.R.C.S. Post vacant early March. Applications, with names of two referees, to Group Secretary, Royal Infirmary, Preston, Lancs. (8787)

ROYAL ALEXANDRA INFIRMARY, Paisley

SENIOR HOUSE OFFICER or JUNIOR HOSPITAL MEDICAL OFFICER

required for Orthopaedic and Fracture Unit. Applications, giving experience, together with the names of two referees, should be submitted to Group Medical Superintendent. (8629)

ROYAL CORNWALL INFIRMARY, Truro

Applications are invited for one vacancy as

SENIOR HOUSE OFFICER (Orthopaedic)

The Orthopaedic Centre for most of the County of Cornwall (120 beds, three consultants and five junior staff) offers experience in all aspects of orthopaedic and traumatic surgery.

Applications, stating age, nationality, qualifications and experience, together with copies of two recent references, to be addressed to the Hospital Secretary. (8390)

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL 234 Great Portland Street, London W.1, and Brockley Hill, Stanmore, Middlesex

Applications are invited for the post of

RESIDENT SENIOR HOUSE OFFICER

(two vacancies) for a period of six months. Duties to commence at the Country Hospital, Stanmore, on April 15, 1961, and at Great Portland Street on May 1, 1961. Applications, stating preference, to be received by February 24, 1961. Forms of application can be obtained from the House Governor at 234 Great Portland Street, London W.1. (8960)

THE UNITED NEWCASTLE UPON TYNE HOSPITALS

Applications are invited for the resident appointment of

SENIOR HOUSE OFFICER to the Orthopaedic Department

at the Royal Victoria Infirmary. The appointment will be subject to the terms and conditions of staff engaged in the National Health Service of England and Wales. Applications, giving full details, and the names and addresses of three referees, should be sent to the House Governor and Secretary, Royal Victoria Infirmary, Newcastle upon Tyne 1, within 14 days of the appearance of this advertisement. (9039)

IMPORTANT: All intending applicants should read the revised NOTICE at the top of page 46

Orthopaedics—contd.

WORKINGTON INFIRMARY, Cumberland
(169 beds; pre-registration post, recognized F.R.C.S.)

HOUSE OFFICER
for Orthopaedic, Surgical and Casualty duties
(first, second or S.H.O. post). Vacant mid-January. Applications, with dates and names of two referees, to Group Secretary, Workington Infirmary, Cumberland. (7331)

BRIDGE OF EARN HOSPITAL, Perthshire

Applications are invited for the following posts:
THREE HOUSE SURGEONS and
THREE SENIOR HOUSE SURGEONS
(Fracture and Orthopaedic Unit)
Applications, giving age, qualifications, experience, and names of two referees, should be sent to the Group Medical Superintendent, Perth Royal Infirmary, Perth. (8984)

THE UNITED LIVERPOOL HOSPITALS

Liverpool Royal Infirmary
David Lewis Northern Hospital

Applications are invited for appointment as
RESIDENT HOUSE SURGEONS
to the Orthopaedic Departments for the period March 1, 1961, to August 31, 1961. The posts are open to registered practitioners and pre-registration applicants. Apply, as soon as possible, on form obtainable from the Secretary, The United Liverpool Hospitals, 80 Rodney Street, Liverpool 1. (9026)

OTOLARYNGOLOGY

EASTERN REGIONAL HOSPITAL BOARD
(Scotland)

Perth and Perthshire Area
Ear, Nose and Throat Surgery

Applications are invited for an appointment as
EAR, NOSE AND THROAT SURGEON
(Consultant)
in the establishment for the Eastern Region, which is based at Dundee Royal Infirmary (549 beds). The appointment is for duty in the Perth and Perthshire Area of the region, with clinical charge of the unit at **Bridge of Earn Hospital** (800 beds) and responsibility for out-patient clinics at that hospital and Perth Royal Infirmary, and also at cottage hospitals in the area. There will be an honorary appointment from the University of St. Andrews for clinical teaching at Dundee Royal Infirmary. The appointment will be on a whole-time or maximum part-time basis in the option of the successful candidate. Salary and conditions of service in accordance with national agreement. Further particulars and forms of application from the Secretary to the Board, Vernonholme, Riverside Drive, Dundee, who whom applications must be lodged not later than March 28, 1961. (8664)

ST. ANTHONY'S HOSPITAL, Cheam, Surrey

Applications are invited for the post of
CONSULTANT EAR, NOSE AND THROAT SURGEON
at the above hospital, for two sessions weekly. The post will be vacant on February 14. Applications, with details of age, nationality, qualifications, experience and names of three referees, to the Secretary. (8987)

THE HOSPITAL FOR SICK CHILDREN
Great Ormond Street, London W.C.1

There will be a vacancy on April 1, 1961, for a
WHOLE-TIME SENIOR REGISTRAR
to the Ear, Nose and Throat Department. Further particulars and application form, to be returned by February 17, 1961, obtainable from the House Governor. (9066)

METROPOLITAN E.N.T. HOSPITAL
at St. Mary Abbots Hospital, Marloes Road, Kensington, W.8

Applications are invited for appointment as
CLINICAL ASSISTANTS
for the following E.N.T. out-patient sessions. Posts tenable for one year. Salary £215 per annum per session.

Tuesday morning ..	Mr. F. Boyes Korkis
Wednesday morning ..	Mr. Clifford Evans
Thursday morning ..	Mr. C. P. Malley
Thursday afternoon ..	Mr. Eric Steeler

Applications to the Hospital Secretary by February 4, 1961. (9023)

NORTH STAFFORDSHIRE ROYAL INFIRMARY, Stoke-on-Trent

SENIOR HOUSE OFFICER
required for E.N.T. Department. Post recognized for F.R.C.S. and D.L.O. Vacant shortly. A six weeks' postgraduate course has recently been completed and it is proposed to hold similar courses in the future. Detailed applications, with copy testimonials, to the Hospital Secretary as soon as possible. (8468)

CAERNARVON AND ANGLESEY HOSPITAL MANAGEMENT COMMITTEE

Caernarvon and Anglesey General and Minffordd Hospitals, Bangor

Applications are invited for the post of
SENIOR HOUSE OFFICER
to the E.N.T., Dermatological and Oral Surgical Departments at the above hospitals. The post is non-resident and the successful applicant will be expected to reside within easy reach of both hospitals. Salary £1,050 or £1,100 per annum, according to age. Applications, stating age, nationality, qualifications and experience, together with names and addresses of two referees, to Group Secretary, Plas Gwyn, Ffriddoedd Road, Bangor, N. Wales. (9028)

ROTHERHAM HOSPITAL, Yorkshire (161 beds)

Applications are invited for the post of
SENIOR HOUSE OFFICER
(E.N.T. and Eye Departments)
with E.N.T. duties at the Moorgate General Hospital. Applications, stating age, qualifications and experience, together with the names of referees, should be sent to the Hospital Secretary, Rotherham Hospital, Doncaster Gate, Rotherham, as soon as possible. (8521)

SHREWSBURY HOSPITAL GROUP

Eye, Ear and Throat Hospital

LOCUM SENIOR HOUSE OFFICER (E.N.T.)
Resident. Duties at E.N.T. Hospital (67 beds) and Copthorne Hospital (193 beds). Vacant immediately. Applications, with copy testimonials, to Group Secretary, Copthorne Hospital, Shrewsbury. (8867)

THE BRIGHTON AND LEWES HOSPITAL MANAGEMENT COMMITTEE GROUP HOSPITALS (76 beds)

HOUSE SURGEON
(S.H.O. grade) one of two, required March 14, 1961, in the E.N.T. Department. Recognized for D.L.O. and F.R.C.S. Applications, stating age, qualifications, experience, and naming two referees, to the Administrative Officer, Royal Sussex County Hospital, Eastern Road, Brighton 7. (7579)

IPSWICH AND EAST SUFFOLK HOSPITAL

Anglesea Road Wing (351 beds)

Applications invited for post of
HOUSE SURGEON
to Ear, Nose and Throat and Ophthalmic Departments. Post recognized for pre-registration and for D.L.O. examinations. Excellent library facilities available. Applications, giving full particulars and copies of recent testimonials, to Hospital Secretary. (7382)

PAEDIATRICS

BARNET GENERAL HOSPITAL
Wellhouse Lane, Barnet, Herts (461 beds)

LOCUM TENENS MEDICAL REGISTRAR
(Paediatrics and General Medicine)
required February 13 to March 1 inclusive. Applications, with full details, to Hospital Secretary (Barnet 7421). (8011)

NORTHERN REGIONAL HOSPITAL BOARD
(Scotland)

WHOLE-TIME LOCUM TENENS SENIOR REGISTRAR IN PAEDIATRICS
required for a period of about six months. Post non-resident. Main duties at Raigmore Hospital and Royal Northern Infirmary, Inverness. Previous experience in paediatrics essential. Apply, giving the names of three referees, to Dr. A. M. Fraser, Secretary and Administrative Medical Officer, Northern Regional Hospital Board, Reay House, 17 Old Edinburgh Road, Inverness. (8988)

BLACKBURN AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

SENIOR HOUSE OFFICER (Paediatrics)
required February 28, 1961. Post recognized for D.C.H., and duties as arranged by Consultant Paediatrician at Queen's Park Hospital and Royal Infirmary, Blackburn, Victoria Hospital, Accrington (general hospitals), and Park Lee Hospital, Blackburn (I.D. hospital). Apply to Group Secretary, H.M.C. Office, Royal Infirmary, Blackburn. (8788)

BURNLEY AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Marsden Hospital, Burnley (78 beds)

SENIOR HOUSE OFFICER
(Paediatrics and Chest Diseases)
This post provides wide and varied experience in all branches of paediatrics and chest diseases. Good accommodation available. The person appointed will work under the supervision of the appropriate Registrars and Consultants. Applications, with two references, to Group Secretary, Burnley General Hospital. Position vacant end of February. (8975)

CHILDREN'S HOSPITAL
Durham Road, Sunderland (83 beds)

HOUSE OFFICER or SENIOR HOUSE OFFICER
(Paediatrics)
male or female, required. Previous experience, though desirable, is not essential. The hospital provides good facilities for D.C.H. examination. Post vacant February 10, 1961. Apply, naming two referees, to the Hospital Secretary, Royal Infirmary, Durham Road, Sunderland. (8831)

COUNTY HOSPITAL, Hereford

SENIOR HOUSE OFFICER (Paediatrics)
required immediately for unit of 60 beds. Recognized for D.C.H. Applications in writing, together with names of two referees, to Group Secretary, Victoria House, Eign Street, Hereford. (8961)

EXETER AND MID-DEVON HOSPITALS MANAGEMENT COMMITTEE

Exeter City Hospital, Exeter (260 beds)

LOCUM TENENS SENIOR HOUSE OFFICER
required in the Paediatric Department from February 25, 1961, to March 12, 1961, inclusive. Apply to Hospital Secretary. (8989)

MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE

All Saints' Hospital, Chatham, Kent

PAEDIATRIC SENIOR HOUSE PHYSICIAN
required at the above general hospital for post vacant March 1. Recognized for D.C.H. Salary £1,050 or £1,100, according to age, less £180 for residence. Please apply to Hospital Secretary, stating age, qualifications, experience, and nationality, together with copies of two recent testimonials. (8762)

QUEEN ELIZABETH HOSPITAL FOR CHILDREN, Hackney Road, E.2, Shadwell, E.1, and Banstead, Surrey

HOUSE OFFICER/SENIOR HOUSE OFFICER
for two consecutive periods of six months, commencing April 1, 1961. First period House Physician, graded House Officer, six months; second period House Surgeon, two months, and Casualty Officer, four months, graded Senior House Officer, all at Hackney Road. Application forms may be obtained from the Secretary, at Hackney Road, and should be returned, with not more than three testimonials, by February 18, 1961. (9113)

QUEEN ELIZABETH HOSPITAL FOR CHILDREN, Hackney Road, E.2, Shadwell, E.1, Banstead, Surrey

SENIOR RESIDENT MEDICAL OFFICER
(male or female) graded Senior House Officer, at Banstead, Surrey. Previous paediatric experience essential. Appointment will be for one year from April 1, 1961. Application forms (obtainable from the Secretary at Hackney Road) should be returned with copies of three testimonials not later than February 11, 1961. (8680)

SHREWSBURY HOSPITAL GROUP

Monkmoor Hospital

SENIOR HOUSE OFFICER or HOUSE OFFICER
(Paediatrics)
Post vacant February 17. Recognized for D.C.H. Married accommodation available. Applications to Group Secretary, Copthorne Hospital, Shrewsbury, naming three referees. (8522)

SOUTH MANCHESTER HOSPITAL MANAGEMENT COMMITTEE

Wythenshawe Hospital, Manchester 23

LOCUM TENENS SENIOR HOUSE OFFICER IN PAEDIATRICS
required at the above hospital for the period February 23 to March 7, 1961, inclusive. Applications, with full details, should be sent to the Group Secretary, Withington Hospital, Manchester 20, immediately. (8690)

THE HOSPITAL FOR SICK CHILDREN
Great Ormond Street, London W.C.1

There will be vacancies for the following Senior House Officers:

TWO HOUSE PHYSICIANS
Vacant April 15, 1961.
ONE HOUSE SURGEON
Vacant April 14, 1961.

Further particulars and application forms, to be returned by February 15, 1961, obtainable from the House Governor. (8681)

CLWYD AND DEESIDE HOSPITAL MANAGEMENT COMMITTEE

Royal Alexandra Hospital, Rhyl

Applications are invited from pre-registration or registered medical practitioners for the post of
HOUSE OFFICER in Paediatrics (18 beds)
and General Medicine (24 beds)
at the above hospital. Post vacant April 1. Applications, stating age and experience, with copies of two testimonials, to be sent to the Group Secretary, "Rhianfa," Russell Road, Rhyl. (8789)

Paediatrics—contd.

SOUTHAMPTON CHILDREN'S HOSPITAL
(Recognized by Conjoint Board for D.C.H.)
(Establishment one Registrar and four House Officers)

HOUSE OFFICER
(post-registration) required mid-March. The post offers wide experience in paediatrics. Preference will be given to candidates intending to specialize in paediatrics. Applications, stating full details, together with copies of two recent testimonials, to be forwarded to the Group Secretary, Southampton Group Hospital Management Committee, Tremona Road, Southampton. (8752)

TOTTENHAM GROUP HOSPITAL MANAGEMENT COMMITTEE, The Green, N.15

RESIDENT PAEDIATRIC HOUSE PHYSICIAN (third post) to the Prince of Wales's General Hospital, for a period of six months, vacant March 25, 1961. (Post recognized for D.C.H.) Successful applicant will be required to act as locum from March 11, 1961. Application form, from Secretary, to be returned by February 13, 1961. (8733)

PATHOLOGY

ROYAL EAST SUSSEX HOSPITAL

LOCUM CONSULTANT PATHOLOGIST
required, for duties in the Hastings Group of Hospitals, February 27 to March 17, 1961, inclusive. Applications, giving full details of qualifications, experience, etc., together with names of two referees, to Group Secretary, Hastings Hospital Management Committee, 9 White Rock Road, Hastings, as soon as possible. (8556)

ST. ALBANS CITY HOSPITAL (394 beds)
St. Albans, Herts

LOCUM TENENS PATHOLOGIST
(Consultant or S.H.M.O.) required for Clinical Pathological Department immediately for two weeks. Applications, stating age, qualifications, experience, and naming one referee, to the Secretary, Mid-Herts Group Hospital Management Committee, Bleak House, Catherine Street, St. Albans. (8832)

SHEFFIELD REGIONAL HOSPITAL BOARD

WHOLE-TIME ASSISTANT PATHOLOGIST
(S.H.M.O. grade) with special interest in haematology required City General Hospital, Sheffield. Higher qualification would be an advantage. Facilities available for research. Application forms and further details from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield. Forms to be returned by March 4, 1961. (8874)

HAROLD WOOD HOSPITAL, Essex

Applications invited for
REGISTRAR IN CLINICAL PATHOLOGY
in the Area Laboratory for six months in first instance. All branches of clinical pathology undertaken. Please apply to Group Secretary, Brentwood Hospital Management Committee, High Wood Hospital, Brentwood, Essex. (8790)

HERTS AND ESSEX GENERAL HOSPITAL
Bishop's Stortford, Herts (341 beds)

LOCUM ASSISTANT PATHOLOGIST
Registrar or S.H.O. grade, according to experience. Immediate vacancy for one month, and then on weekly basis pending a permanent appointment. Apply Hospital Secretary. Telephone Bishop's Stortford 963. (9040)

LONDON CHEST HOSPITAL

Hospitals for Diseases of the Chest

A vacancy occurs during March, 1961, for
REGISTRAR IN CLINICAL PATHOLOGY
(Registrar grade)
at the hospital's Country Branch, Letchworth, Herts. The appointment (resident) is a whole-time one, and will be for one year in the first instance. Applications, stating age, qualifications (with dates), and previous experience, together with copies of three testimonials, should reach the undersigned not later than February 15.—J. Robbins, House Governor, London Chest Hospital, E.2. (8269)

ROCHDALE AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

RESIDENT CLINICAL PATHOLOGIST
(Registrar grade)
Applications are invited for the above appointment in the Department of Pathology of the Rochdale Group of Hospitals. The new Department of Pathology was recently opened and is recognized for the Diploma of Pathology. The duties consist wholly of clinical pathology and involve part share in emergency service. Previous pathology experience is essential. Married furnished accommodation available. Apply at once, giving usual particulars and names and addresses of two referees, to Group Secretary, Birch Hill Hospital, Rochdale. (8655)

SELLY OAK HOSPITAL, Birmingham

REGISTRAR (Pathology)
Tenable firstly at Selly Oak Hospital, but successful candidate expected to spend one year in Department of Morbid Anatomy at Children's Hospital, Birmingham. Selly Oak Hospital recognized D.Path. and D.C.P. examinations, and provides training and experience in all branches of clinical pathology. Children's Hospital duties include research on causes of death in infancy. Application forms, from Secretary, Selly Oak H.M.C., Oak Tree Lane, Birmingham 29, to be returned by February 13, 1961. Candidates may visit hospitals. (8869)

THE LONDON HOSPITAL, Whitechapel, E.1 and the NORTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD

Applications are invited for the post of
SENIOR REGISTRAR IN MORB'D ANATOMY
to the Bernhard Baron Institute of Pathology. The post becomes vacant on May 1, 1961. The appointment will be for one year, renewable for maximum of four, which includes one year to be spent at Chase Farm Hospital, Enfield. Applications (12 copies), giving the names and addresses of three referees, should be received by the undersigned by February 28, 1961.—H. Brierley, House Governor. (9018)

THE UNITED SHEFFIELD HOSPITALS

Applications are invited for the post of
REGISTRAR IN CLINICAL PATHOLOGY
The successful candidate may be required to work in any of the laboratories of the United Sheffield Hospitals, including the recently opened New Teaching Hospital. Applications, stating age, nationality, qualifications, present and previous appointments (with dates), naming three referees, to the Chief Administrative Officer, United Sheffield Hospitals, West Street, Sheffield 1, not later than February 11, 1951. (8738)

WHITTINGTON HOSPITAL, London N.19

REGISTRAR IN CLINICAL PATHOLOGY
required at Group Laboratory. Some night and week-end duty. Free accommodation when on duty. The post affords excellent experience in bacteriology, biochemistry and haematology. Vacant April 1. Laboratory may be visited by appointment with the Group Pathologist. Application forms obtainable from, and returnable to, Group Secretary, Archway Group H.M.C., 46 Cholmeley Park, N.6, by February 13. (8868)

BOOTH HALL CHILDREN'S HOSPITAL
Blackley, Manchester 9 (364 beds)

Applications are invited for the post of
RESIDENT CLINICAL PATHOLOGIST
Senior House Officer grade. The post (vacant from April 1 and tenable for one year) affords opportunities for training in all branches of pathology and bacteriology, including some adult work (at Monsall Hospital), and is recognized for the D.Path. and D.C.P. Candidates should have held house appointments, but previous experience in pathology is not essential. Application forms from Group Secretary. (9041)

GREENWICH AND DEPTFORD AND SEAMEN'S GROUPS

SENIOR HOUSE OFFICER (Pathology)
Vacancy in Group Laboratories of Greenwich and Deptford and Seamen's Groups. Post, recognized for D.Path. of Conjoint Board, suitable for candidate reading for higher degree and wishing to obtain laboratory experience. Applications, stating age, qualifications and experience, with names of two referees, to Group Secretary, Seamen's Hospital, Greenwich, S.E.10. (9124)

ROYAL HAMPSHIRE COUNTY HOSPITAL
Winchester (414 beds)

SENIOR HOUSE OFFICER (Pathological Dept.) required. Preferably resident. Vacant March 1, 1961. Duties will include training in the various branches of clinical pathology, especially haematology. Previous experience in clinical pathology desirable, but not essential. Applications, with copies of two testimonials, to the Hospital Secretary. (8875)

SHREWSBURY HOSPITAL GROUP

Royal Salop Infirmary/Copthorne Hospital
(500 beds)

Senior House Officer to work as
CLINICAL PATHOLOGIST
to Group Laboratory. Appointment tenable for one year, resident or non-resident. Recognized for Diploma in Pathology. Vacant immediately. A Unit of the Public Health Laboratory Service is housed in the same building, and there are facilities for training in all the four main branches of pathology. Applications to Group Secretary, Copthorne Hospital, Shrewsbury, naming three referees. (8524)

SOUTH MANCHESTER HOSPITAL MANAGEMENT COMMITTEE

Withington Hospital, Manchester 20

There will be a vacancy for
RESIDENT CLINICAL PATHOLOGIST
(Senior House Officer grade), commencing April 1, 1961. Previous experience in pathology not essential, the post affording an opportunity for gaining experience in all branches of clinical pathology. The laboratory has recently been extended and modernized. Applications, stating age, qualifications, present post, experience, and the names of two referees, to be forwarded to the Group Secretary, Withington Hospital, Manchester 20, by February 18, 1961. (9057)

THE ROYAL FREE HOSPITAL
Gray's Inn Road, W.C.1

RESIDENT ASSISTANT PATHOLOGIST
(two posts) (Senior House Officer grade). The appointments are for six months in the first instance from April 1, 1961. Application forms, from the Secretary to the Board of Governors, to be returned by February 11, 1961. (8693)

UNITED SHEFFIELD HOSPITALS

Jessop Hospital for Women

RESIDENT SENIOR HOUSE OFFICER
(Pathology)
required. Vacant April 1, 1961. This appointment forms part of a training scheme suitable for candidates for the M.R.C.O.G. examination. Applications, with names of three referees or testimonials, should be sent immediately to the Superintendent, Jessop Hospital for Women. (9101)

WOKING AND CHERTSEY GROUP LABORATORY

Applications are invited for the post of
SENIOR HOUSE OFFICER IN PATHOLOGY
The post offers opportunities for gaining experience in all branches of clinical pathology. Applications, stating age, qualifications, etc., together with the names of two referees, should be sent to the Director, Group Laboratory, St. Peter's Hospital, Chertsey, Surrey. (8644)

PHYSICAL MEDICINE

SHEFFIELD REGIONAL HOSPITAL BOARD

CONSULTANT IN PHYSICAL MEDICINE
(whole-time) required for the Derby Area. Application forms and further details from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield 10. Forms to be returned by March 4, 1961. (8876)

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PLASTIC SURGERY

LIVERPOOL REGIONAL HOSPITAL BOARD

Applications are invited for the post of
ASSISTANT PLASTIC SURGEON (Consultant)
whole-time (with opportunity to become part-time after three years) or maximum part-time sessions. The duties will be mainly at the Plastic Units (Director, Mr. R. P. Osborne) at Whiston (78 beds), Alder Hey Children's (28 beds), and Leasowe (32 beds) Hospitals. In addition the person appointed will attend other hospitals in the region as required and conduct out-patient clinics at peripheral hospitals. Applicants must have considerable experience in the specialty, and possession of a higher qualification in general surgery is essential. Forms of application, from Dr. T. Lloyd Hughes, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, 55 Castle Street, Liverpool 2, to be returned not later than February 25, 1961.—Vincent Collinge, Secretary to the Board. (9078)

LEEDS REGIONAL HOSPITAL BOARD

REGISTRAR IN PLASTIC SURGERY
for duties at St. James's Hospital, Leeds, Special Plastic and Maxillo-Facial Unit (68 beds). Resident. Single accommodation available. Vacant April 1, 1961. Applications, stating age, qualifications, and details of present and previous appointments (with dates), together with the names and addresses of three referees, to the Secretary, Joint Registrars Committee, Park Parade, Harrogate, by February 9, 1961. (8833)

PSYCHIATRY

LEEDS REGIONAL HOSPITAL BOARD

CONSULTANT IN PSYCHIATRY
(whole-time or maximum part-time), Scalebor Park Hospital, Burley-in-Wharfedale (396 beds, including private and amenity beds), and associated out-patient clinics. Hospital associated with University Department of Psychiatry for teaching purposes. To reside in Ilkley/Otley area. Applications (12 copies), stating age, qualifications, and details of appointments held (showing dates), with names and addresses of three referees, to the Secretary, Park Parade, Harrogate, by February 25, 1961. (8834)

SOUTH-EASTERN REGIONAL HOSPITAL BOARD (Scotland)

CONSULTANT IN PSYCHOLOGICAL MEDICINE (Mental Deficiency)
Applications are invited for the post of Consultant (whole-time) in Psychological Medicine, specializing in mental deficiency and in the rehabilitation of the mentally handicapped. Approval has now been received for the establishment of a new mental deficiency hospital in Fife, and the successful candidate will be expected to assist the Regional Board in the planning of this major project. The successful candidate will have opportunity to develop his special field in an expanding mental health service and will be expected to co-operate with Local Authorities on educational matters and domiciliary care. His duties will mainly be in Fife, but he will be available for duties in other parts of the Region, and an honorary lectureship in the Department of Psychological Medicine at the University of Edinburgh will be available to a suitable candidate. A house is available to the successful candidate if desired. Apply, giving particulars of age, qualifications and previous experience, and the names of three referees, to the Secretary, 11 Drumsheugh Gardens, Edinburgh 3, by February 25, 1961. (9131)

WELSH REGIONAL HOSPITAL BOARD

WHOLE-TIME CONSULTANT PSYCHIATRIST/PHYSICIAN SUPERINTENDENT
Ely Hospital, Cardiff. This is a hospital of 624 beds (424 of which are for mentally subnormal patients and the remainder for elderly psychotics). The hospital, which has two new children's villas and a school, is situated on the outskirts of the city and is within easy reach of the centre of Cardiff and the teaching hospital. In addition to his duties at Ely Hospital, the successful candidate will also have an association with his colleagues at other psychiatric hospitals in the area. Applications (12 copies), naming three referees, to S.A.M.O., Temple of Peace and Health, Cathays Park, Cardiff, within 21 days. (8766)

LEEDS REGIONAL HOSPITAL BOARD

ASSISTANT PSYCHIATRIST
(S.H.M.O. grade, whole-time)
Broadgate Hospital, Beverley. This is a compact hospital of 650 beds near Hull. It has been considerably modernized and has a most active social and rehabilitative programme. Candidates must possess the D.P.M. Married accommodation available. Applications (12 copies), stating age, qualifications, and details of appointments held (showing dates), with names and addresses of three referees, to the Secretary, Park Parade, Harrogate, by February 18, 1961. (8566)

CROYDON GROUP HOSPITAL MANAGEMENT COMMITTEE

Mayday Hospital (594 beds)

LOCUM TENENS S.H.M.O.
required March 27 to April 23. Experience in care of psychiatric patients and diabetics. Applications in writing, with names of two referees, to Group Secretary, Croydon General Hospital, by February 10. (8802)

LEEDS REGIONAL HOSPITAL BOARD

WHOLE-TIME ASSISTANT PSYCHIATRIST
(S.H.M.O. grade), York. Required for duties in the comprehensive Mental Health Service established between Naburn and Bootham Park Hospital (657 beds), and York Local Health Authority. The successful candidate will work under the direction of the Physician Superintendent at Naburn and Bootham Park Hospitals, and will undertake five sessions in the service of York County Borough at the Mental Health Centre. The person appointed will be concerned with the expansion of out-patient social therapeutic activities and with the Public Health aspects of clinical psychiatry. Applicants should hold the D.P.M. The person appointed to reside in York. Applications (12 copies), stating age, qualifications, and details of appointments held (showing dates), with names and addresses of three referees, to the Secretary, Park Parade, Harrogate, by February 25, 1961. (8877)

MANCHESTER REGIONAL HOSPITAL BOARD

WHOLE-TIME RESIDENT ASSISTANT PSYCHIATRIST
(S.H.M.O.) at Calderstones Hospital, Whalley, near Blackburn (about 2,350 beds for mental subnormality). Candidates should have good experience in psychiatry. D.P.M. desirable. Furnished or unfurnished house available for married person, furnished flat and full board, etc., for single officer. Application forms, from Senior Administrative Medical Officer to the Board, Cheetwood Road, Manchester 8, to be returned by February 14, 1961. (9115)

WELSH REGIONAL HOSPITAL BOARD

WHOLE-TIME LOCUM TENENS ASSISTANT PSYCHIATRIST (S.H.M.O.)
required Whitchurch Hospital, near Cardiff, immediately for approximately three months. Applications, naming two referees, to S.A.M.O., Temple of Peace, Cathays Park, Cardiff. (8950)

BOARD OF GOVERNORS OF THE UNITED SHEFFIELD HOSPITALS and SHEFFIELD REGIONAL HOSPITAL BOARD

WHOLE-TIME SENIOR REGISTRAR IN PSYCHIATRY
required, with initial tenure of appointment at Middlewood Hospital, Sheffield (1,962 beds). Flat available if desired. Possession of a D.P.M. or higher qualification desirable. Appointment for one year in first instance, and renewable thereafter annually. Incumbent will be transferred to the Teaching Hospitals for the second phase of the appointment in accordance with arrangements under the Reciprocal Training Scheme. Renewal of appointment and transfer to the Teaching Hospitals will be subject to satisfactory work and progress. Further details, and form of application, from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield 10. Forms to be returned by February 13, 1961. (8525)

BROMHAM HOSPITAL, near Bedford (394 beds for mentally subnormal patients), and 60 at Annexe, near Sandy

REGISTRAR IN PSYCHIATRY
required. Hospital may be visited by direct appointment with the Medical Superintendent (telephone Bromham Green 295). Application forms obtainable from, and returnable to, Secretary, Bedford Group H.M.C., 3 Kimbolton Road, Bedford. (4396)

CANE HILL HOSPITAL, Coulsdon, Surrey

Applications are invited for the post of whole-time
PSYCHIATRIC REGISTRAR
The hospital, which is half an hour's rail journey from London, has about 2,000 patients, with an admission rate of over 1,200 a year. All forms of treatment are given. Postgraduate teaching is undertaken in conjunction with the Institute of Psychiatry, and facilities are given for study for the D.P.M. There are five out-patient clinics at general hospitals in South London, and a Day Hospital has recently been opened. Quarters are available for a single man or woman, or the post may be held as non-resident. Application forms obtainable from, and returnable to, Group Secretary by February 17. Candidates may visit the hospital by arrangement with the Physician Superintendent. (8803)

NEWCASTLE REGIONAL HOSPITAL BOARD

REGISTRAR PSYCHIATRIST
whole-time, for St. Nicholas' Hospital, Gosforth, Newcastle upon Tyne 3 (1,162 beds). Good experience and training in psychiatry offered. Facilities are available for the appointee to take the Durham University D.P.M. course. To be resident when on duty call. Further particulars from Regional Psychiatrist. Applications, with names and addresses of three referees, to Regional Psychiatrist, Newcastle Regional Hospital Board, Benfield Road, Newcastle upon Tyne 6, within 14 days. (8791)

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

REGISTRAR IN PSYCHIATRY
(subnormality and severe subnormality) at Leavesden Hospital (2,310 beds) (recognized for D.P.M.). Resident accommodation available for single person. Hospital may be visited by direct appointment with Physician Superintendent. Application forms available from, and returnable to, Physician Superintendent, Leavesden Hospital, Abbots Langley, near Watford, Herts, within 14 days. (9072)

OXFORD REGIONAL HOSPITAL BOARD

REGISTRAR IN PSYCHIATRY
to St. Crispin Hospital, Duston, Northampton. There are excellent opportunities to gain experience in adult and child psychiatry, in-patient and out-patient, and in E.E.G. The appointment will be for one year, eligible for extension to two years. Vacant now. Residential accommodation is available. Applications, on forms obtainable from the Secretary, Registrars Committee, 43 Banbury Road, Oxford, should reach him by February 15. (8570)

PRESTON AND CHORLEY HOSPITAL MANAGEMENT COMMITTEE

Applications are invited for the post of
REGISTRAR IN PSYCHIATRY
Main duties at Sharoe Green Hospital, with out-patient clinics at other hospitals in the Group. Application forms obtainable from Group Secretary, Royal Infirmary, Preston, Lancs. (8792)

SOUTH-EASTERN REGIONAL HOSPITAL BOARD, Scotland

JOINT TRAINING SCHEME FOR PSYCHOLOGICAL MEDICINE
of the Regional Board and the University of Edinburgh Department of Psychological Medicine
Vacancies exist for trainee Registrar posts within the above scheme. Appointments are normally for two years. During the first year the trainee works in one of the Board's hospitals and is given facilities for part-time study at the University Department. Individual vacancies will be advertised as they arise. Residential accommodation is available in some cases. On passing of Part I of the Dip.Psych. of Edinburgh University, a candidate becomes eligible for secondment for full-time study at the University Department in order to prepare for Part II. During the period of appointment, arrangements are made for secondment to special hospitals and clinics for the experience required by the examination regulations. Regional specialist units for different branches of the subject are distributed among the hospitals which form part of the Mental Health Service in process of rapid expansion. Inquiries about the scheme should be made to the Secretary, South-Eastern Regional Hospital Board, Scotland, 11, Drumsheugh Gardens, Edinburgh 3. Applications should be made only in relation to advertisements for specific vacancies. (9140)

THE UNITED LEEDS HOSPITALS

The General Infirmary at Leeds

Applications are invited for the post of
REGISTRAR
to the Department of Psychiatry (Leeds University), to work at the General Infirmary at Leeds. Some previous experience of psychiatry necessary. Opportunities are available for study for a higher degree. Applications, including three names for reference, to be sent to the Sub-Dean, School of Medicine, Leeds 2, by not later than February 8, 1961. (8695)

HIGHCROFT HOSPITAL (GROUP 7) Erdington, Birmingham 23 (1,206 beds, mental and nervous disorders)

REGISTRARS IN PSYCHIATRY (Three)
SENIOR HOUSE OFFICERS (Two)
Following a considerable expansion in the services at this hospital, applications are invited for the above new posts, resident or non-resident, which offer wide experience in all forms of psychiatric treatment. The hospital has an admission rate of over 1,300 patients per annum, and has extensive extra-mural activities, day hospital facilities, and progressive occupational and industrial therapy departments. Facilities for studying for the D.P.M., including attendances at the Birmingham Medical School, will be made available. Applications to the Medical Superintendent, Highcroft Hospital, Erdington, Birmingham 23. (8870)

Psychiatry—contd.

BARNSLEY HALL HOSPITAL
(for mental disorders)
Bromsgrove, Worcs (890 beds)

Applications are invited for the post of
JUNIOR HOSPITAL MEDICAL OFFICER
Excellent opportunities for a young man to study in a modern mental hospital, modern treatments and up-to-date psychiatry. House available. Remuneration will be in accordance with the terms and conditions of service issued by the Ministry of Health. Applications, stating age and experience, together with the names of three referees, to the Medical Superintendent. (8793)

FOUNTAIN AND CARSHALTON GROUP HOSPITAL MANAGEMENT COMMITTEE

Fountain Hospital, London

JUNIOR HOSPITAL MEDICAL OFFICER
(Male or female, resident or non-resident). The Group (which has 800 psychiatric beds for mentally subnormal children) provides wide experience in neurology, paediatrics, and child psychology, as well as in mental subnormality. There are clinical, neuropathological and biochemical research units and clinical conferences are held weekly. Numerous lectures and demonstrations are given to students and graduates. Applications, giving full particulars and three referees, to Secretary, Fountain Hospital, Tooting Grove, London S.W.17, as soon as possible. (9103)

FOUNTAIN AND CARSHALTON GROUP HOSPITAL MANAGEMENT COMMITTEE

Fountain Hospital, London

LOCUM JUNIOR HOSPITAL MEDICAL OFFICER
required immediately. Paediatric and psychiatric experience desirable. Apply to Secretary, at Fountain Hospital. (9102)

MENSTON (Psychiatric) HOSPITAL
Menston, Ilkley, Yorks

JUNIOR HOSPITAL MEDICAL OFFICER or SENIOR HOUSE OFFICER
(according to experience) required. The hospital is recognized for the D.P.M., and facilities are granted to attend courses at the Department of Psychiatry, Leeds University. Resident accommodation for single person. Applications, in writing, stating age, qualifications and experience, and names of two referees, to the Physician Superintendent immediately. (9080)

MORGANNWG HOSPITAL, Bridgend

APPOINTMENT OF JUNIOR HOSPITAL MEDICAL OFFICER
Applications are invited for the above post at this hospital, to which there is an admission rate of well over 1,400 patients annually, and which is responsible for extensive domiciliary and out-patient services throughout the county. The hospital possesses very full facilities for all modern methods of investigation and treatment. The post provides excellent opportunities for study for the D.P.M., and staff in training are expected to attend the tutorials in psychology, psychiatry and neurology regularly carried out by the senior staff, in addition to attending the clinical conferences, etc. Considerable use is made of films for training purposes. A child guidance clinic is closely associated with the hospital. Married accommodation is available. Applications, giving full details of qualifications and experience, together with the names and addresses of two referees, to be sent to the Group Secretary, Morgannwg Hospital, Bridgend. (9104)

SCALEBOR PARK, Burley-in-Wharfedale, Ilkley

Applications are invited for the post of
JUNIOR HOSPITAL MEDICAL OFFICER
(male or female) at Scalebor Park, a modern hospital of 396 beds (Health Service, amenity and private), for the active treatment of nervous and mental disorders. The hospital is associated for teaching purposes with the Department of Psychiatry of Leeds University, and facilities will be granted for attending the D.P.M. course. The salary is in accordance with the Whitley Council scales. There is accommodation in the hospital for a single person. A council house will shortly be made available within easy reach. Applications to the Physician Superintendent immediately. (8646)

GARLANDS HOSPITAL MANAGEMENT COMMITTEE

Garlands Hospital, Carlisle (1,032 beds)

Applications are invited from registered medical practitioners for the posts of Junior Hospital Medical Officer and Senior House Officer at the above mental hospital. Previous psychiatric experience not essential.

JUNIOR HOSPITAL MEDICAL OFFICER
Salary £1,100 by £60 to £1,580 per annum. Small modern house available on the hospital estate, deduction for rent and rates £71 10s. per annum.

SENIOR HOUSE OFFICER
Salary £1,050 per annum. Furnished flat available in hospital, deduction for board and lodging. Facilities for attendance at a course of study available at Newcastle in connexion with the Durham University D.P.M. Leave granted and travelling expenses paid.

Applications, stating age, qualifications, experience, and the names of two referees, to be sent to the Medical Superintendent as soon as possible. (9132)

FRIERN HOSPITAL, London N.11 (2,470 beds)

Applications are invited for the appointment of
SENIOR HOUSE OFFICER IN PSYCHIATRY
Appointment for one year. Applications, stating full particulars and names of two referees, should be sent to the Group Secretary, Friern Hospital, New Southgate, N.11. (9073)

GLENSIDE AND BARROW HOSPITAL MANAGEMENT COMMITTEE

Glenside and Barrow Hospitals

Applications invited from registered practitioners for appointment of
SENIOR HOUSE OFFICER
National scales and conditions. The Group includes modern Admission Units, Neurosis Centre, and Day Hospital, with departments of applied psychology and electroencephalography. The appointments offer opportunities for experience in many aspects of acute and chronic psychiatric illness. Facilities available for studying and gaining experience for Diploma in Psychological Medicine and for attending courses at Bristol University in preparation for this examination. Full board-residence available for single officer. Applications, with names of three referees, should be sent to Medical Superintendent, Barrow Hospital, Barrow Gurney, near Bristol. (8871)

SOUTH LIVERPOOL HOSPITAL MANAGEMENT COMMITTEE

Sefton General Hospital, Liverpool 15 (992 beds)

Applications are invited from suitably qualified medical practitioners for a
SENIOR HOUSE OFFICER
appointment for a 50-bedded psychiatric unit at the above-named hospital for the informal admission of psychiatric patients suitable for investigation and treatment in a general hospital. The post presents an exceptional opportunity for postgraduate training in psychiatry. The post may be resident or non-resident, and the Whitley Council terms and conditions of service will apply. Application forms may be obtained from the undersigned, to whom they should be returned as soon as possible. —Garnet Chaplin, Secretary to the Committee. (9079)

SUFFOLK MENTAL HOSPITALS MANAGEMENT COMMITTEE

St. Audry's Hospital, Melton, Woodbridge, Suffolk
St. Clement's Hospital, Foxhall Road, Ipswich, Suffolk

SENIOR HOUSE OFFICER
Applications are invited from registered medical practitioners (men or women) for the above post, which is now vacant. The two hospitals in the Group, comprising 1,500 beds, together with out-patient departments, electroencephalography and medical psychology, offer extensive experience of modern psychiatric methods. The Group is recognized for D.P.M. purposes, and experience is also available locally in child psychiatry and neurology. Furnished flat available at £2 11s. 9d. per week. Salary in accordance with the national scales as laid down in "Terms and Conditions of Service for Medical and Dental Officers." Applications should be made to the Group Secretary, St. Audry's Hospital, Melton, Woodbridge, Suffolk. (8982)

SOUTH LIVERPOOL HOSPITAL MANAGEMENT COMMITTEE

Sefton General Hospital, Liverpool 15 (992 beds)

Applications are invited for an appointment as
RESIDENT HOUSE PHYSICIAN (Psychiatric)
at the above-named hospital. This appointment is approved as a pre-registration post and will be for a period of six months, commencing on March 1, 1961. This unit is a diagnostic and early treatment centre for acute psychiatric cases, and undertakes psychiatric teaching of undergraduate students. The post is recognized for the conjoint D.P.M. The terms and conditions of service will be in accordance with the regulations of the Ministry of Health. Application forms may be obtained from the undersigned, to whom they should be returned as soon as possible.—Garnet Chaplin, Secretary to the Committee. (9120)

RADIOLOGY

SHEFFIELD REGIONAL HOSPITAL BOARD

WHOLE-TIME LOCUM FOR CONSULTANT RADIOLOGIST
required for period March 17 to 30, for Grimsby area. Remuneration according to status. Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield 10, naming two referees. (8835)

WESTERN REGIONAL HOSPITAL BOARD

Applications are invited for the following appointment:
CONSULTANT RADIOLOGIST
at the Victoria Infirmary, Glasgow, and associated hospitals. The appointment is whole-time or with maximum part-time sessions. Applications (16 copies), stating date of birth, qualifications, experience, present appointment, and the names of three referees, to reach the Secretary, Western Regional Hospital Board, 351 Sauchiehall Street, Glasgow C.2, not later than 30 days after the publication of this advertisement. (9096)

SOUTH-EASTERN REGIONAL HOSPITAL BOARD, Scotland

REGISTRAR IN RADIOLOGY
for service in the Fife Hospitals. This post will be linked with the Radiology Department of the Royal Infirmary, Edinburgh, and will include duties there. Apply, giving particulars of age, qualifications and previous experience, and the names of two referees, to the Secretary, 11 Drumsheugh Gardens, Edinburgh 3, by February 18, 1961. (9141)

THE UNITED CARDIFF HOSPITALS

Applications are invited for the appointment of
REGISTRAR IN RADIOLOGY
to work part-time at the Cardiff Royal Infirmary and part-time at Llandough Hospital, Penarth. To commence March 1. D.M.R.D. preferred. Application forms are available from the Acting Secretary, United Cardiff Hospitals, Cardiff Royal Infirmary, Newport Road, Cardiff, and should be returned within 14 days of the appearance of this advertisement. (9042)

THE UNITED LIVERPOOL HOSPITALS

Royal Liverpool Children's Hospital

Applications are invited for a post of
SENIOR HOUSE OFFICER IN RADIOLOGY
for the period to September 30, 1961. Apply, by February 11, 1961, on form obtainable from the Secretary, 80 Rodney Street, Liverpool 1. (9027)

RADIOTHERAPY

SHEFFIELD REGIONAL HOSPITAL BOARD

WHOLE-TIME ASSISTANT RADIOTHERAPIST
with duties at the Sheffield National Centre for Radiotherapy, and at hospital clinics in the Sheffield Clinical Area. Candidates should be in possession of the D.M.R.(T.). The successful applicant will work under the direction of the Medical Director. Salary scale £2,000 to £2,700 per annum. Application forms and further details from Senior Administrative Medical Officer, Sheffield R.H.B., Old Fulwood Road, Sheffield. Forms to be returned by March 4, 1961. (8878)

RHEUMATOLOGY

LEEDS REGIONAL HOSPITAL BOARD

CONSULTANT IN RHEUMATOLOGY
(Maximum part-time)
for duties at the Harrogate Rheumatism Centre (Royal Bath Hospital (147 beds) and the White Hart Hospital (133 beds)). Out-patient clinics at St. James's Hospital, Leeds, and at other Regional Centres. Harrogate, where the successful candidate would be required to reside, is a natural centre for rheumatism treatment and offers excellent facilities. Applications (12 copies), stating age, qualifications, and details of appointments held (showing dates), with names and addresses of three referees, to the Secretary, Park Parade, Harrogate, by February 25, 1961. (8836)

SURGERY

BIRMINGHAM REGIONAL HOSPITAL BOARD

(1) Birmingham (Selly Oak) Group 25, Oak Tree Lane, Selly Oak, Birmingham 29.
REGISTRAR (General Surgery)
for Selly Oak Hospital, Birmingham 29 (equipped beds 1,033). Recognized F.R.C.S. Higher qualification desirable.

(2) Stoke-on-Trent Group, Princes Road, Stoke-on-Trent.

SURGICAL REGISTRAR
required for North Staffordshire Royal Infirmary (451 beds). Duties to combine Casualty Registrar and Assistant Resident Surgical Officer, Casualty Officer (S.H.O.) also employed. Higher qualification desirable. Post recognized for F.R.C.S. Resident/non-resident. A six weeks' postgraduate course has recently been completed, and it is proposed to hold similar courses in future.

(3) West Bromwich and District Hospitals Group, District Hospital, Edward Street, West Bromwich.

LOCUM TENENS SURGICAL REGISTRAR
for Hallam Hospital, West Bromwich (428 beds). For the period February 27 to May 19, 1961. Resident. Experience specialty essential.

Application forms, from Group Secretaries, to be returned (Nos. 1 and 2) by February 13, 1961, No. 3 immediately. Candidates may visit the hospitals concerned. (8872)

Surgery—contd.

BOARD OF GOVERNORS OF THE UNITED SHEFFIELD HOSPITALS AND THE SHEFFIELD REGIONAL HOSPITAL BOARD

RECIPROCAL TRAINING SCHEME FOR SENIOR REGISTRARS

Whole-time Senior Surgical Registrar required, with initial tenure of appointment at the Royal Infirmary, Sheffield. Possession of a higher qualification is desirable. Appointment for one year in the first instance, and renewable annually thereafter. Successful candidate will be transferred to the Regional Hospitals for the second phase of the appointment in accordance with the arrangements under the Reciprocal Training Scheme. Renewal of appointment and transfer will be subject to satisfactory work and progress. Applications, with names of three referees, to Chief Administrative Officer, United Sheffield Hospitals, West Street, Sheffield 1, not later than February 18, 1961. (8735)

COLINDALE HOSPITAL
Colindale Avenue, London N.W.9 (265 beds)

WHOLE-TIME SURGICAL REGISTRAR

resident or non-resident, required. F.R.C.S. an advantage. Work covers surgical treatment of tuberculous and non-tuberculous chest diseases and a small amount of orthopaedic and genito-urinary surgery. The hospital may be visited by direct appointment with the Physician Superintendent. Application forms obtainable from, and returnable to, Group Secretary, Edgware General Hospital, Edgware, Middlesex, by February 14, 1961. (9106)

LEEDS REGIONAL HOSPITAL BOARD

REGISTRARS IN GENERAL SURGERY

(i) Hull Royal Infirmary (80 general surgical beds) and other hospitals in the Hull (A) Group. Resident. Married accommodation available. Recognized for F.R.C.S. Vacant April 1, 1961.

(ii) Pontefract and Castleford Group (70 beds), may include some duties in the Casualty Department. Resident. Furnished house available. Recognized for F.R.C.S. Vacant April 1, 1961.

(iii) General Surgery and Urology, Bradford (A) Group, mainly at the Bradford Royal Infirmary (88 general surgical and 67 urology beds). Resident. Single accommodation available. Recognized for F.R.C.S.

Applications, stating age, qualifications, and details of present and previous appointments (with dates), together with the names and addresses of three referees, to the Secretary, Joint Registrars Committee, Park Parade, Harrogate, by February 9, 1961. (8837)

LIVERPOOL REGIONAL HOSPITAL BOARD

Chester Royal Infirmary

Applications are invited for the post of
WHOLE-TIME LOCUM SURGICAL REGISTRAR
for a period of eight weeks from February 27, 1961. Forms of application, from Dr. T. Lloyd Hughes, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, 55 Castle Street, Liverpool 2,—Vincent Collinge, Secretary to the Board. (9077)

MANCHESTER REGIONAL HOSPITAL BOARD

Applications are invited for the post of
SURGICAL REGISTRAR
to the Lancaster, Morecambe and Kendal Group of Hospitals. Resident or non-resident. Vacant April 19, 1961. Main duties at Royal Lancaster Infirmary. Post is recognized under F.R.C.S. regulations. Appointment for one year in first instance. Applications, stating age, qualifications, experience, and names of two medical referees, to Group Secretary, Royal Lancaster Infirmary, Lancaster. (8667)

MILLER GENERAL HOSPITAL
Greenwich, S.E.10

LOCUM RESIDENT SURGICAL OFFICER
from February 24 to March 11 (inclusive). Salary £25 weekly, less £215 per annum for residence. Tel. GRE 2655, Ext. 117. (9074)

NORTHERN IRELAND HOSPITALS AUTHORITY

APPOINTMENT OF REGISTRARS OR SENIOR REGISTRARS

Applications are invited for whole-time posts as Registrar or Senior Registrar in General Surgery for the period ending July 31, 1961. The national terms and conditions of service for hospital medical and dental staff will apply. Applications to be made on a form obtainable (with further particulars) from the Secretary, Northern Ireland Hospitals Authority, 27 Adelaide Street, Belfast 2, and to be returned so as to be received not later than February 13, 1961. (8990)

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

West Herts Group Hospital Management Committee

SURGICAL REGISTRAR
required at West Herts and St. Paul's Hospital, Hemel Hempstead, Herts (390 beds). Post vacant on or about February 20, 1961. Married or single accommodation available. Application forms obtainable from, and returnable to, Secretary, West Herts Hospital, Hemel Hempstead, by not later than February 11. (9085)

OXFORD REGIONAL HOSPITAL BOARD

REGISTRAR IN GENERAL AND TRAUMATIC SURGERY
at Kettering General Hospital. The post which is recognized for F.R.C.S., is mainly general surgery and offers a wide range of experience. Single or married accommodation available. Appointment for one year, eligible for extension to a second year. Vacant April 1, 1961. Applications, on forms obtainable from the Secretary, Registrars Committee, 43 Banbury Road, Oxford, should be returned to him by February 14. (8571)

ROYAL ALBERT EDWARD INFIRMARY
Wigan

SURGICAL REGISTRAR
required. Post vacant in February, 1961. House available. Preference given to holders of higher surgical qualifications. Post recognized for F.R.C.S. Apply, with names of two referees, to Secretary, Royal Albert Edward Infirmary, Wigan. (9019)

SHEFFIELD REGIONAL HOSPITAL BOARD

City General Hospital, Sheffield (680 beds)
(Recognized for F.R.C.S.)

WHOLE-TIME RESIDENT SURGICAL REGISTRAR
required April 1. This is a large general hospital, with teaching affiliations. Appointment for one year in first instance. Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, by February 13, 1961, giving age, nationality, qualifications, present and previous appointments (with dates), naming three referees. (8838)

SOUTH-EASTERN REGIONAL HOSPITAL BOARD, Scotland

Applications are invited for the post of
SENIOR REGISTRAR IN GENERAL SURGERY
to the Edinburgh Teaching Hospitals. The successful candidate will be appointed initially to the Surgical Teaching Unit at the Eastern General Hospital. Apply, giving particulars of age, qualifications and previous experience, and the names of three referees, to the Secretary, 11 Drumsheugh Gardens, Edinburgh 3, by February 25, 1961. (9142)

THE UNITED LIVERPOOL HOSPITALS

Liverpool Royal Infirmary

Applications are invited for the post of
REGISTRAR IN SURGERY
for the period to September 30, 1961. The person appointed will be eligible to apply in the summer of 1961 for appointment for the year beginning October 1, 1961. Apply, by February 18, 1961, on form obtainable from the Secretary, 80 Rodney Street, Liverpool 1. (9105)

PRESTON AND CHORLEY HOSPITAL MANAGEMENT COMMITTEE

Chorley and District Hospital (85 beds)

JUNIOR HOSPITAL MEDICAL OFFICER IN GENERAL SURGERY
required. One of three established posts. Recognized for F.R.C.S. Resident or non-resident. Vacant late February. Applications, with names of two referees, to Group Secretary, Royal Infirmary, Preston, Lancs. (8794)

BATTERSEA GENERAL HOSPITAL
Battersea Park, S.W.11

HOUSE SURGEON/CASUALTY OFFICER
Combined post for registered practitioner, six months. Resident. Senior House Officer grade. Apply, naming two referees, to Hospital Secretary. (8843)

BRADFORD ROYAL INFIRMARY
Bradford, Yorkshire (507 beds)

SENIOR HOUSE OFFICER
(General Surgery/Urology)
required April 1, 1961. Recognized for F.R.C.S. Applications, stating age, qualifications, experience, etc., to the Secretary. (9125)

DERBYSHIRE ROYAL INFIRMARY, Derby
(416 beds)

HOUSE SURGEON (Pre-registration) or SENIOR HOUSE OFFICER (General Surgery)
Resident. Vacant March 1. Recognized F.R.C.S. if he'd by Senior House Officer. Apply, stating full details and two names for reference, to Secretary. (8558)

DONCASTER HOSPITAL MANAGEMENT COMMITTEE

Doncaster Royal Infirmary (328 beds)

Applications are invited for the post of
HOUSE SURGEON
(Intern or Senior House Officer). Post recognized for F.R.C.S. Applications to the Group Secretary, at Doncaster Royal Infirmary. (8839)

EAST SURREY HOSPITAL
Shrewsbury Road, Redhill, Surrey

SENIOR HOUSE OFFICER
(resident), Surgical and some Casualty. Post recognized F.R.C.S. Vacant March 18, 1961. Applications to Hospital Secretary. (8840)

FINCHLEY MEMORIAL HOSPITAL
Granville Road, North Finchley, N.12 (76 beds)

SENIOR HOUSE OFFICER (Surgery)
required. Some casualty duties. Post vacant mid-February. Applications should be sent to the Hospital Secretary, with the names of two referees. (9056)

GENERAL HOSPITAL, Aberystwyth

SENIOR HOUSE OFFICER (Surgery)
required. Post vacant February 13, 1961. Married accommodation available. Applications, accompanied by two recent references, to the Hospital Secretary, General Hospital, Aberystwyth. (8351)

MINEHEAD & WEST SOMERSET HOSPITAL
Minehead, Somerset

Applications are invited for the post of
RESIDENT SURGICAL OFFICER
(S.H.O.) with care of surgical cases under Consultant staff. One other Senior House Officer. Six months' or one year's appointment. Vacant February 1, 1961. Fully furnished self-contained house available at low rental for married applicant. Applications to the Secretary, Minehead and West Somerset Hospital, Minehead, Somerset. (8996)

NORTHERN IRELAND HOSPITALS AUTHORITY

APPOINTMENT OF SENIOR HOUSE OFFICER (Surgery)

Applications are invited for one post of Senior House Officer in Surgery at Massereene Hospital, Antrim, N. Ireland, for duty at February 1, 1961, or before, for a period of one year. Massereene Hospital contains 176 beds, and is situated 17 miles from Belfast. It provides beds in general medicine, general surgery, obstetrics, gynaecology, E.N.T., and for children. It has the related out-patient departments and is served by an area laboratory. The hospital is recognized by the Royal College of Surgeons of England. The salary for the post held will be at the rate of £1,050 per annum at age under 28 years, and at the rate of £1,100 per annum at age 28 years or over on appointment. These scales are under review. The living-in charge will be at the rate of £180 per annum. The post is superannuable under the Health Services Superannuation Scheme. Applications should be addressed to reach the Secretary, Mid-Antrim Hospitals Management Committee, at Braid Valley Hospital, Ballymena, Co. Antrim, N. Ireland, as soon as possible. (9133)

NORTH MONMOUTHSHIRE HOSPITAL MANAGEMENT COMMITTEE

Ebbw Vale Hospital, Monmouthshire
(General beds 71, maternity 15)

Applications are invited for the appointment of
SENIOR HOUSE OFFICER
This hospital is an active surgical unit, and the medical staff consists of a resident Consultant Surgeon, visiting Orthopaedic, Gynaecological, and Ophthalmic Surgeons, and a resident Junior Hospital Medical Officer and two Senior House Officers. Applications, giving full details, together with names of two referees, to Group Secretary, c/o Nevill Hall Hospital, Abergavenny, Mon. (9134)

NOTTINGHAM CITY HOSPITAL (811 beds)

Applications are invited for the post of
SENIOR HOUSE OFFICER (General Surgery)
Vacant February 25, 1961. The post is approved for the F.R.C.S. The officer appointed will also be required to undertake certain duties in the Orthopaedic Department. Applications, stating age, nationality, qualifications and experience, together with copies of not more than three testimonials, to be sent to the Hospital Secretary, City Hospital, Hucknall Road, Nottingham. (8997)

PRESTON AND CHORLEY HOSPITAL MANAGEMENT COMMITTEE

Preston Royal Infirmary (413 beds)

SENIOR HOUSE OFFICER
required for Emergency Department. Resident or non-resident. Recognized for F.R.C.S. Post vacant immediately. Applications, with names of two referees, to Group Secretary, Royal Infirmary, Preston, Lancs. (8795)

Surgery—contd.

NOTTINGHAM NO. 1 HOSPITAL MANAGEMENT COMMITTEE

General Hospital, Nottingham (467 beds)

Applications are invited for the post of
RESIDENT SENIOR HOUSE OFFICER (Surgical)
at the above hospital, with duties commencing February 21, 1961. Applications, stating age, nationality, qualifications and experience, together with copies of two recent testimonials, to be sent to the Group Secretary, General Hospital, Nottingham. (7798)

READING AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Newbury District Hospital, Newbury, Berks (90 beds)

RESIDENT SENIOR HOUSE OFFICER (mainly General Surgery with some Casualty)
Post vacant mid-January. A ground-floor flat suitable for a married person is available. Applications, giving full details, with three names for reference, to Group Secretary, 3 Craven Road, Reading. (7238)

SOUTH TEES-SIDE HOSPITAL MANAGEMENT COMMITTEE

North Ormesby Hospital, Middlesbrough (184 beds)

HOUSE SURGEON (Senior or Pre-registration)
required for Surgical Team No. 2 at the above hospital. Post vacant middle March. Recognized for F.R.C.S. Applications, stating full details and giving two names for reference, to be sent to the Hospital Secretary. (8841)

THE LEICESTER ROYAL INFIRMARY

Applications are invited for the resident post of
SENIOR HOUSE OFFICER (Surgical)
Vacant April 4, 1961. The post is tenable for one year, with rotating duties in the Surgical, Orthopaedic and Casualty Departments, and is recognized for the F.R.C.S. Applications, stating age, qualifications and experience, together with copies of two recent testimonials, to Group Secretary, Leicester No. 1 Hospital Management Committee, the Leicester Royal Infirmary, by February 16, 1961. (8842)

THE ROYAL HOSPITAL, Wolverhampton

SENIOR HOUSE OFFICER (General Surgery)
required. Vacant immediately. Recognized for F.R.C.S. Apply, with copies of two testimonials, to the Secretary. (8404)

TORQUAY DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Torbay Hospital, Torquay (194 beds)

RESIDENT SENIOR HOUSE OFFICER (Surgery)
required mid-February. Post recognized for F.R.C.S. Complement of eight resident House Officers. Applications, stating qualifications, age, nationality, with copy testimonials, to Group Secretary, Torbay Hospital, Torquay. (8632)

AYR COUNTY HOSPITAL, Ayr (122 surgical beds)

HOUSE SURGEONS (Two)
required February 1, 1961. One for general surgery and gynaecology and one for traumatic and orthopaedic surgery. Both posts offer wide experience under Consultant supervision. Establishment includes Surgical Registrar, J.H.M.O. (Orthopaedics), and J.H.M.O. (Casualty). May be held pre- or post-registration. Resident. National terms. Apply immediately, Area Medical Superintendent, Ballochmyle Hospital, Mauchline, Ayrshire (Tel. Catrine 281). (8633)

BROMLEY HOSPITAL
Cromwell Avenue, Bromley, Kent

HOUSE SURGEON
required immediately. Recognized for F.R.C.S. Pre-registration post. Write, stating full particulars and naming two referees, to Hospital Secretary. (9048)

CAERNARVON AND ANGLESEY HOSPITAL MANAGEMENT COMMITTEE

HOUSE SURGEON
required at the Caernarvon and Anglesey General Hospital, Bangor (recognized for the F.R.C.S.). Salary and conditions of service in accordance with those approved by Ministry of Health. Applications, stating age, qualifications and experience, with names and addresses of two referees, to Group Secretary, Plas Gwyn, Ffriddoedd Road, Bangor, N. Wales. (9029)

CANADIAN RED CROSS MEMORIAL HOSPITAL, Taplow, near Maidenhead

HOUSE SURGEON
required for post vacant February 1. Pre-registration post. Applications to Secretary. (8559)

CHANNEL ISLANDS, JERSEY, GENERAL HOSPITAL

Applications are invited for the post of
RESIDENT HOUSE OFFICER
Post-registration. The hospital has 70 surgical beds and provides exceptionally wide general surgical experience. The post is vacant from March 1, 1961. The appointment is for six months in the first instance, but is renewable for a further six months. Salary £825 per annum, less £165 for residential emoluments. Applications to be submitted, not later than February 9, 1961, to the President, Public Health Committee, General Hospital, Jersey, C.I. (8287)

CHESTER ROYAL INFIRMARY (217 beds)

Applications are invited for the post of
RESIDENT HOUSE SURGEON (General)
which will become vacant at the end of February. Recognized for pre-registration and F.R.C.S. Applications, with the names and addresses of two referees, should be forwarded to the Hospital Secretary. (9121)

CONNAUGHT HOSPITAL, Walthamstow, E.17 (123 beds)

HOUSE SURGEON
required for six months. Recognized for F.R.C.S. Post vacant March 19, 1961. Applications, with full details and copies of two recent testimonials, should be sent immediately to the Secretary, Forest Group H.M.C., Langthorne Road, E.11. (8844)

EASTBOURNE, PRINCESS ALICE HOSPITAL (120 beds)

Applications are invited for the pre-registration post of
HOUSE SURGEON
for General Surgery in a busy, well-equipped hospital. Staff of three House Officers. Post recognized by Royal College of Surgeons. Applications, stating age, nationality, qualifications and experience, with copies of two recent testimonials, to the Secretary, 29 Bedfordwell Road, Eastbourne. (8846)

EAST SURREY HOSPITAL
Shrewsbury Road, Redhill, Surrey

PRE-REGISTRATION HOUSE SURGEON
Resident. Post vacant February 15, 1961. Applications to Hospital Secretary. (8845)

EPPING, ST. MARGARET'S HOSPITAL (436 beds)

HOUSE SURGEON
(pre- or post-registration) to very busy General Surgical Unit. Post recognized for F.R.C.S. Hospital within easy reach of Central London. Post vacant March 1, 1961. Applications, with copies of recent testimonials, including one from medical school, to reach the Group Secretary, Epping Group H.M.C., "Oak Cottage," The Plain, Epping, Essex, by February 10, 1961. (8471)

GLOUCESTERSHIRE ROYAL HOSPITAL
Southgate Street, Gloucester (220 beds)

HOUSE SURGEON
required. Post vacant immediately. Excellent general surgical experience. Recognized for pre-registration service and the F.R.C.S. Applications, naming two referees, to the Group Secretary. (9135)

HOSPITAL OF ST. JOHN AND ST. ELIZABETH
60 Grove End Road, London N.W.8

Applications are invited from pre-registration or registered medical practitioners (male) for the appointment of
HOUSE SURGEON
to become vacant on Monday, February 20, 1961. This post is recognized for the purpose of the F.R.C.S.(Eng.). Appointment will be for a period of six months. National Health Service salary. Applications should be sent to the Secretary, together with copies of three recent testimonials, on or before Monday, February 13. (9130)

HUDDERSFIELD HOSPITAL MANAGEMENT COMMITTEE

Huddersfield Royal Infirmary (285 beds)

HOUSE SURGEON
required, to commence duties early February. The post is recognized as a pre-registration appointment and for the F.R.C.S. Salary in accordance with national scale. Applications, together with copies of three recent testimonials, to be addressed to the undersigned as soon as possible.—H. J. Johnson, Group Secretary, Huddersfield Hospital Management Committee, the Royal Infirmary, Huddersfield. (9081)

JOYCE GREEN HOSPITAL, Dartford (15 miles from London) (600 beds. 12 residents)

PRE-REGISTRATION or POST-REGISTRATION HOUSE SURGEON (General)
required. Recognized for F.R.C.S. Applications to Physician Superintendent, Joyce Green Hospital, Dartford. (8804)

KIDDERMINSTER AND DISTRICT GENERAL HOSPITAL, Worcestershire

Applications are invited for the pre-registration post of
HOUSE SURGEON
at the above hospital. Applications, with the names of three referees, to the Hospital Secretary. (8796)

KINGSTON GROUP HOSPITAL MANAGEMENT COMMITTEE

Surbiton General Hospital, Ewell Road, Surbiton, Surrey (72 beds)

RESIDENT JUNIOR HOUSE OFFICER (Surgical)
required for post now vacant. Pre-registration post. Duties include casualty out-patients. Post provides interesting experience. Salary and conditions of service in accordance with national scales. Applications, stating age, qualifications and nationality, with copies of two testimonials, to the Administrative Officer, Surbiton General Hospital, Ewell Road, Surbiton, Surrey. (8797)

MAIDENHEAD HOSPITAL, Berkshire

HOUSE SURGEON
required February 20. Pre-registration post. Applications, stating qualifications, age, and nationality, with names of three referees, to Secretary. (8873)

MAIDSTONE, WEST KENT GENERAL HOSPITAL (141 beds)

Mid-Kent Hospital Management Committee

Applications are invited for the pre-registration post of
HOUSE SURGEON
Six months' appointment. Post vacant early March, 1961. Recognized for F.R.C.S. Applications, stating age and experience, to the Administrative Officer. (8764)

IMPORTANT: All intending applicants should read the revised NOTICE at the top of page 46

Established 1885

THE Medical Defence Union

EUSton 4244

MEMBERSHIP EXCEEDS 47,000

Subscription: £1 each year for first three years for newly qualified entrants, £3 for members of more than three years' standing.

Practitioners resident and practising abroad are invited to apply for full particulars of overseas Membership.

Full particulars from the Secretary (DR. PHILLIP H. ADDISON), The Medical Defence Union, Ltd., Tavistock House South, Tavistock Square, London W.C.1.

Surgery—contd.

MEMORIAL HOSPITAL, Woolwich, S.E.18

HOUSE SURGEON

Vacant March 12. Approved for pre-registration service and for F.R.C.S. Six months' resident post. Apply to Secretary. (8649)

MILLER GENERAL HOSPITAL (180 beds)
Recognized for F.R.C.S. examination

HOUSE SURGEON

Vacant March 1. Six months' appointment. National salary and conditions. Write, with testimonials, to Group Secretary, G. and D. H.M.C., St. Alfege's Hospital, S.E.10. (9075)

NORTH AND MID-CHESHIRE HOSPITAL MANAGEMENT COMMITTEE

Altrincham General Hospital and Denzell Annexe (130 beds)

HOUSE OFFICER (Surgical)

required. Post vacant March 5, 1961. Applications, with names and addresses of three referees, to the Hospital Secretary, Altrincham General Hospital, Market Street, Altrincham. (8847)

NORTH WIRRAL HOSPITAL MANAGEMENT COMMITTEE

Victoria Central Hospital Surgical Unit, Liscard Road, Wallasey

Applications are invited for the following resident appointments, from March 1, 1961, for a period of six months. These posts are approved as pre-registration posts:

THREE HOUSE SURGEONS

(Approved by the Royal College of Surgeons as training posts for F.R.C.S.) Salary £675, £750, £825, according to experience, less £155, £160, £165 per annum for board, lodgings, etc. Terms and conditions of service are in accordance with the regulations of the Ministry of Health. Applications, giving details of age, nationality, qualifications and experience, together with names and addresses of three persons for reference, to the Administrative Officer. (8191)

NOTTINGHAM NO. 1 HOSPITAL MANAGEMENT COMMITTEE

General Hospital, Nottingham (467 beds)

Applications are invited for the post of
RESIDENT PRE-REGISTRATION HOUSE SURGEON
at the above hospital, with duties commencing as soon as possible. Applications, stating age, nationality, qualifications and experience, together with copies of two recent testimonials, to be sent to the Group Secretary. (7839)

PERTH ROYAL INFIRMARY

Applications are invited for the following post:
HOUSE SURGEON (General Surgical Wards)
Applications, giving age, qualifications, experience, and names of two referees, should be sent to the Group Medical Superintendent, Perth Royal Infirmary, Perth. (8986)

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.15

HOUSE SURGEON

(pre-registration) required for six months, commencing February 9, 1961. Post recognized for F.R.C.S. Applications, with copies of recent testimonials, to Hospital Secretary as soon as possible. (9044)

QUEEN MARY'S HOSPITAL, Sidcup, Kent

HOUSE OFFICER (Surgeon)

required from March 1, 1961, for six months. Pre- or post-registration. Applications, giving full details, together with names and addresses of two referees, should be sent to the Secretary. (9047)

ROYAL CORNWALL INFIRMARY, Truro

Applications are invited for the post of
HOUSE SURGEON
(Pre-registration). Applications, stating age, nationality, qualifications and experience, together with copies of two recent references, to be addressed to the Hospital Secretary. (8417)

ROYAL SUSSEX COUNTY HOSPITAL (312 beds)

HOUSE SURGEON

required February 27. Pre-registration and recognized for F.R.C.S. Applications, giving age, qualifications, and names of two referees, to the Administrative Officer, Royal Sussex County Hospital, Brighton 7. (8742)

ST. ALBANS CITY HOSPITAL
St. Albans, Herts (394 beds)

HOUSE SURGEON

(pre-registration) required. Post vacant March 1, 1961. Recognized for F.R.C.S. Applications to Secretary, Mid-Herts Group Hospital Management Committee, Catherine Street, St. Albans. (7742)

ST. HELENS AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

HOUSE SURGEON

Applications are invited for the above post at St. Helens Hospital (196 beds), vacant from March 1, 1961. The post is recognized for pre-registration service and also for training for the Fellowship of the Royal College of Surgeons. Applications, stating age, date of qualification and experience, and giving two names for reference, should be forwarded immediately to the Group Secretary, Whiston Hospital, Prescot, Lancs. (8957)

SALISBURY GROUP HOSPITAL MANAGEMENT COMMITTEE

Salisbury General Hospital

Applications are invited for the combined appointment of
RESIDENT HOUSE SURGEON/HOUSE PHYSICIAN
to run consecutively in this order, for a period of six months in each post, starting February 19, 1961. Post open to pre-registration candidates. Apply, enclosing copies of two recent testimonials, to Hospital Secretary, General Infirmary, Salisbury. (8540)

TAUNTON AND SOMERSET HOSPITAL

HOUSE OFFICER (General Surgery)

required. Pre-registration post. Recognized for F.R.C.S. Applications, stating age, nationality, and qualifications, together with the names of two referees, to the Group Secretary, Taunton Hospital Management Committee, Musgrove Park Hospital, Taunton, Somerset. (8848)

THE GENERAL HOSPITAL, Dewsbury, Yorks (128 beds)

HOUSE OFFICER (General Surgery)

Applications are invited for the above pre-registration post, which falls vacant in mid-February, and is tenable for six months. Applications, giving full details and the names of two referees, to the Administrative Officer at the hospital immediately. (8849)

THE ROYAL HOSPITAL, Wolverhampton

PRE-REGISTRATION HOUSE OFFICER
(General Surgery)

Vacant immediately. Recognized for F.R.C.S. Apply, with copies of two testimonials, to the Secretary. (5961)

WARRINGTON GENERAL HOSPITAL (335 beds)

RESIDENT HOUSE SURGEON

Applications are invited for the above post, which will become vacant early in March, 1961. The post is recognized for pre-registration purposes and for the examination for Fellowship of the Royal College of Surgeons of England. As well as a comprehensive training in general surgery, the post offers some experience in the specialties, so that it is therefore eminently suitable for both those who wish to specialize and those who wish to enter general practice. If so desired, it can usually be arranged for the holders to complete their pre-registration year by proceeding to similar appointments on the Medical Unit of the hospital at the end of their period as House Surgeons. Applications should be sent to Henry L. Boot, Group Secretary, Warrington and District Hospital Management Committee, c/o General Hospital, Warrington, Lancs. (8958)

WARRINGTON INFIRMARY

Applications are invited for the post of
HOUSE SURGEON (Male or Female)
(Recognized for pre-registration)
The post is now vacant. The Surgical Unit consists of 95 beds, and the post offers a comprehensive training and experience in general surgery and the specialties. Salary will be £675/£825 per annum, less a deduction of £155/£165 for full residential emoluments. Applications should be sent to Henry L. Boot, Group Secretary, Warrington and District Hospital Management Committee, c/o General Hospital, Warrington. (9122)

WESTERN DISTRICT HOSPITAL
Possil Road, Glasgow C.4

HOUSE OFFICERS

required for the Surgical Unit, for the period ending July 31, 1961. General hospital with busy out-patient department. Applications to the Medical Superintendent. Telephone Douglas 3206. (9003)

WEST HERTS AND ST. PAUL'S HOSPITALS
Hemel Hempstead, Herts (390 beds)

Applications are invited for the post of
PRE-REGISTRATION HOUSE OFFICER
for a term of 12 months (six months surgical and six months medical) from mid-February. Applications, together with copies of two recent testimonials, should be sent to the Secretary, West Herts Hospital. (7586)

THORACIC SURGERY

LONDON CHEST HOSPITAL

A vacancy occurs April 1, 1961, for
SURGICAL REGISTRAR
The appointment is for one year in the first instance, and is full-time and non-resident. Previous experience of thoracic surgery essential. Applications, stating date of birth, qualifications (with dates), and previous appointments held, with copies of three testimonials, should reach the undersigned not later than February 15.—J. Robbins, House Governor, London Chest Hospital, E.2. (8970)

SOUTH-EASTERN REGIONAL HOSPITAL BOARD, Scotland

REGISTRAR

for the Regional Thoracic Surgery Unit, based on the Royal Infirmary, Edinburgh. Apply, giving particulars of age, qualifications and previous experience, and the names of two referees, to the Secretary, 11 Drumsheugh Gardens, Edinburgh 3, by February 18, 1961. (9143)

THE HOSPITALS FOR DISEASES OF THE CHEST

Applications invited for posts of
SENIOR SURGICAL REGISTRAR
(Two vacancies)
(Whole-time). The appointments are for one year, with eligibility for reappointment, and will involve duties within the Group. Candidates must hold the Diploma of F.R.C.S. Applications, stating age, qualifications (with dates), nationality, and appointments held, together with copies of testimonials, by February 11, 1961, to Kenneth A. F. Miles, Secretary to the Board, Brompton Hospital, London S.W.3. (8694)

BLACKPOOL VICTORIA HOSPITAL

SENIOR HOUSE OFFICER (Thoracic Surgery)
Senior House Officer. This post, available February, is recognized for F.R.C.S. It offers sound experience in the department responsible for thoracic surgery in the northern part of the Manchester Region. Two Consultant Surgeons in charge and Registrar on establishment. Applications, stating age, qualifications and experience, together with the names and addresses of two referees, should be sent to the Group Secretary, Victoria Hospital, Blackpool. (8421)

LEICESTER ISOLATION HOSPITAL AND CHEST UNIT, Groby Road, Leicester (328 beds)

RESIDENT SENIOR HOUSE OFFICER
(Surgical) (Post recognized for Final Fellowship)
Applications are invited for the above appointment. The appointment is tenable for six months, and may be extended for a further period of six months. Experience will be gained in all branches of thoracic surgery, including cardiac surgery. Applications, giving age, qualifications, dates, etc., and copies of two recent testimonials, to be forwarded, as soon as possible, to the Department of Thoracic Surgery at the above hospital. (8798)

LONDON CHEST HOSPITAL

A vacancy occurs April 1, 1961, for
RESIDENT SURGICAL OFFICER
Appointment for six months, with prospect of renewal. Post graded as Senior House Officer or Registrar, according to qualifications and previous surgical experience. (The post is recognized by the Royal College of Surgeons.) Applications, stating date of birth, qualifications (with dates), and previous appointments held, with copies of three testimonials, should reach the undersigned not later than February 15.—J. Robbins, House Governor, London Chest Hospital, E.2. (8969)

UROLOGY

ST. PETER'S HOSPITAL, Chertsey, Surrey
(415 beds). (Late Botleys Park War Hospital)

RESIDENT HOUSE SURGEON

(S.H.O. grade) required February 15, 1961. Mainly urology with some general surgery. Post recognized for F.R.C.S. Salary in accordance with terms and conditions of National Health Service. Applications, together with names and addresses of referees, to Physician Superintendent, St. Peter's Hospital, Chertsey, as soon as possible. (8323)

VENEREOLOGY

MANCHESTER REGIONAL HOSPITAL BOARD

MAXIMUM PART-TIME CONSULTANT VENEREOLOGIST

for the Manchester area, mainly at St. Luke's Clinic and Seamen's Dispensary, Salford. Appointee will be required to undertake holiday, etc., relief work in other parts of the region as may be necessary from time to time, and live in or near Manchester. Wide experience in the prevention, diagnosis and treatment of venereal diseases essential and higher qualifications desirable. Application forms, from the Senior Administrative Medical Officer to the Board, Cheetwood Road, Manchester 8, to be returned by February 15, 1961. (9049)

PUBLIC HEALTH

BANFF COUNTY COUNCIL

ASSISTANT COUNTY MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER

required, holding D.P.H., and preferably with experience in B.C.G. vaccination technique. Duties mainly in School Health and Child Welfare Services. Salary, according to experience and qualifications, on scale £1,150 by £60 to £1,510 by £65 to £1,640. Travelling allowance for own car. Car purchase scheme in operation. House available. Post superannuable. Apply, in writing, to County Clerk, Banff, stating age, with copy of recent testimonial and names of two referees, not later than 14 days after appearance of this advertisement. (9004)

BURGH OF PAISLEY

DEPUTE MEDICAL OFFICER OF HEALTH

Applications for the above appointment, which offers a wide range of work, are invited from registered practitioners holding a Diploma in Public Health or similar qualification, who have had clinical and administrative experience in public health work. The post is superannuated, and the salary and conditions of service are as recommended by the Whitley Council, the present salary scale being £1,525 to £1,749. Applications, giving age, full particulars of qualifications, experience, etc., and accompanied by the names and addresses of two referees, should be lodged with the Town Clerk, Municipal Buildings, Paisley, immediately (8675)

CITY OF BIRMINGHAM
Public Health Department

MEDICAL OFFICERS
(Temporary appointments)

Applications are invited for the temporary appment of two whole-time Medical Officers in the Maternity and Child Welfare Department, to take holiday duty during the summer months, commencing April 24, 1961. The appointments are non-resident, and the salary offered is at the rate of £22 1s. 1d. per week. Successful applicants expected to remain, if required, for a period of six months. Application forms obtainable from the Medical Officer of Health, Council House, Birmingham 3. Completed forms to be returned to him, with copies of two recent testimonials, not later than March 6, 1961. (8962)

COUNTY BOROUGH OF GATESHEAD

ASSISTANT MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER (Male)

Applications invited from qualified medical practitioners (male) in possession of D.P.H., C.P.H., or D.C.H., for the above post in the Public Health Department. Consideration will also be given to applicants not in possession of the D.P.H. who wish to become bona fide students for the D.P.H. course to be held in Newcastle, on the basis of time off for study without pay. Salary scale commencing £1,150 by £60 to £1,510 by £65 to £1,640 per annum, according to previous experience. Post pensionable, medical examination, and subject to one month's notice. List of the duties may be obtained from the Medical Officer of Health, Greenesfield House, Mulgrave Terrace, Gateshead, to whom applications, with full particulars, accompanied by three recent testimonials, should be sent, endorsed "Assistant Medical Officer," within 14 days of the appearance of this advertisement.—C. D. Jackson, Town Clerk, Town Hall, Gateshead 8. (9147)

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE

JOINT APPOINTMENT OF SENIOR ASSISTANT COUNTY MEDICAL OFFICER AND SCHOOL MEDICAL OFFICER to the Adwick-le-Street, Bentley-with-Arksey, and Tickhill Urban Districts, the Doncaster Rural District, and the West Riding County Council

Applications invited from registered medical practitioners with at least three years' experience since qualification, and holding the D.P.H., or nearing completion of training for the D.P.H. Duties mainly in the School Health and Infant Welfare Services, but in addition person appointed will be required to act for the Divisional Medical Officer and Medical Officer of Health in his absence, and will be appointed Deputy Medical Officer of Health to the constituent authorities. Salary £1,250 to £1,740 per annum. County Council scale of travelling and subsistent allowances. Post superannuable and subject to medical examination. Forms of application, from the undersigned, to be returned not later than February 20, 1961.—Ronald W. Elliott, County Medical Officer, County Hall, Wakefield. (9112)

HAMPSHIRE COUNTY COUNCIL

Registered medical practitioner required for the whole-time, pensionable, mixed appointment of

ASSISTANT COUNTY MEDICAL OFFICER and MEDICAL OFFICER OF HEALTH

to Basingstoke Borough and Rural District Councils. Diploma in Public Health is essential. Whitley Council scale for mixed appointment, £1,680 to £2,126 per annum. Forms of application, returnable by February 20, 1961, and details from the County Medical Officer, The Castle, Winchester. (8683)

LANCASHIRE COUNTY COUNCIL

APPOINTMENT OF ASSISTANT DIVISIONAL MEDICAL OFFICERS

Applications are invited from registered medical practitioners for appointment to vacancies which exist in :

1. COLNE.
2. LEIGH.
3. Areas adjacent to ASHTON-UNDER-LYNE.

Possession of Diploma in Public Health desirable but not essential. Salary scale £1,150 to £1,640, commencing point according to experience. Assisted car purchase scheme and car allowance in accordance with County Council scale. Application forms and further particulars from County Medical Officer of Health, Serial 3026, East Cliff County Offices, Preston, to be returned not later than February 13, 1961.

COUNTY BOROUGH OF CROYDON

ASSISTANT MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER

Applications are invited for this established appointment from registered medical practitioners with at least three years' experience after qualification, for duties mainly in the School Health and Maternity and Child Welfare Services. The possession of the D.P.H. or D.C.H. will be an advantage. The salary is within the scale £1,150 by £60 to £1,510 by £65 to £1,640 per annum. Application forms are obtainable from the Medical Officer of Health, 45 Wellesley Road, Croydon. Closing date February 20, 1961. (8953)

MIDDLESBROUGH C.B.C.

Applications are invited from registered medical practitioners with previous experience in public health (D.P.H. a recommendation) for the following appointments :

SENIOR ASSISTANT MEDICAL OFFICERS OF HEALTH

(a) for Maternal and Child Care ; (b) for after-care and medico-social work. Both posts offer excellent opportunities for insight into the administration of a large modern Health Department, and are permanent whole-time superannuable appointments. Salary scale £1,300 by £60 (6) by £65 (2) to £1,790. Application forms, together with terms and conditions relating to the appointments, may be obtained from the Town Clerk, Middlesbrough, to whom they must be returned by Monday, February 20, 1961. (8952)

MIDDLESEX COUNTY COUNCIL
County Health Department

ASSISTANT MEDICAL OFFICER

required in Area 6 (Wembley and Willesden), to commence duty in April-May. Duties concerned with supervision of health of mothers and young children and School Health Service. Diploma in Public Health or in Child Health desirable. Previous local authority experience advantage. Salary within scale, according to experience, £1,150 to £1,640. Established. Prescribed conditions. Particulars and two referees to Joint Area Medical Officers, 215 Chevening Road, Kilburn, N.W.6, by February 17. (Quote F.331 B.M.) Canvassing disqualifies. (8963)

WESTMORLAND COUNTY COUNCIL

Applications are invited for the post of

DEPUTY COUNTY MEDICAL OFFICER OF HEALTH AND DEPUTY PRINCIPAL SCHOOL MEDICAL OFFICER

preferably from medical practitioners holding the D.P.H. or D.C.H. Duties will be in connection with the School Health and Maternity and Child Welfare Services. Salary in accordance with the Whitley Council scale, at present £1,330 to £1,640, plus travelling expenses. Application forms obtainable from the County Medical Officer, County Hall, Kendall, to whom they should be returned not later than February 17, 1961. (9005)

WEST SUSSEX COUNTY COUNCIL

ASSISTANT COUNTY MEDICAL OFFICERS/ SCHOOL MEDICAL OFFICERS

Applications are invited to fill two new posts, to begin on April 1, 1961. Salary on scale £1,150 to £1,640, commencing according to qualifications and experience. Travelling and subsistence allowances on the Council's scale. Applications, giving the names of two referees, to the County Medical Officer, County Hall, Chichester.—T. C. Hayward, Clerk of the County Council. (8542)

WORCESTERSHIRE COUNTY COUNCIL

DEPUTY MEDICAL OFFICER OF HEALTH
Borough of Oldbury
and DEPUTY DIVISIONAL MEDICAL OFFICER OF HEALTH, Oldbury

Applications invited from registered medical practitioners with D.P.H. for the above appointment. Salary £1,316 2s. 2d per annum to £1,646 2s. 2d. per annum. (For Deputy Divisional Medical Officer on scale £865 by £32 10s. by £35 to £1,135 per annum and Deputy Medical Officer of Health £451 2s. 2d. by £15 11s. 1d. by £14 8s. to £511 2s. 2d.) Application forms obtainable from County Medical Officer, County Health Department, Love's Grove, Castle Street, Worcester. (L.54) (8676)

WEST SUSSEX COUNTY COUNCIL
BOROUGH OF WORTHING

ASSISTANT COUNTY MEDICAL OFFICER/ SCHOOL MEDICAL OFFICER

Applications are invited for this new post, to begin on April 1, 1961. Salary on scale £1,150 to £1,640, commencing according to qualifications and experience, plus a car allowance of £140 per annum. Applications, giving the names of two referees, to the Medical Officer of Health, Worthing Lodge, Stoke Abbott Road, Worthing.—T. C. Hayward, Clerk of the County Council (8485)

GOVERNMENTAL

TREASURY MEDICAL SERVICE

Applications are invited from medical practitioners, practising in the districts detailed below, for appointment, in a part-time and mainly advisory capacity, as

LOCAL TREASURY MEDICAL OFFICER

for each of the places or groups of places shown. The town shown in brackets after the place-names indicates the Head Post Office Area in which the place, or group of places, is situated. Applicants must have a surgery in the area stated. Successful applicants will be required to examine and report on the condition of certain Government Officers, teachers, candidates for appointment, etc., who may be referred to them from time to time ; and to attend when summoned to an emergency case of accident or sudden illness occurring in a Government office in the neighbourhood of his surgery. Fees for this work, and mileage allowance where journeys in excess of a certain distance are necessary, will be paid on a scale agreed with the British Medical Association. Intending applicants should write, within 14 days, to Treasury Medical Adviser, Treasury Chambers, Whitehall, London S.W.1, for a form on which application may be made. Applicants should be not more than 60 years of age.

The places for which applications are invited are as follows :

England and Scotland

Kirkcudbright (Castle Douglas)
Chester (Chester)
Spondon (Derby)
Strachur (Dunoon)
Haddenham (Ely)
Tunstall, Brindley Ford and Goldenhill (Stoke-on-Trent)

SERVICES

Be a Doctor in today's R.A.F.

A G.P. career in the R.A.F. is not only secure but progressive, with excellent opportunities for clinical practice in both junior and senior ranks, and for post-graduate courses. There are also opportunities for those with appropriate experience to specialise. General Practitioners are assured of steady promotion to Wing Commander; recognised specialists to Group Captain. Promotion to higher ranks is by selection.

Initial appointment is normally to a gratuity-earning short service commission (3 to 6 years), or to a pensionable commission for 16 years' service. Commissions are available to men and women, normally under age 33, with full G.M.C. registration.

Write for details to:—

Air Ministry M.A.I. (HN786), 1-6, Tavistock Sq., London, W.C.1.

TODAY'S TOP JOB IS THE R.A.F.

COMMERCIAL AND INDUSTRIAL APPOINTMENTS

FACTORY DOCTORS
FACTORIES ACTS, 1937 and 1948

The following appointment as Appointed Factory Doctor is vacant: Chirk, in the County of Denbigh. Applications, which should be received not later than February 18, 1961, should be sent to H.M. Chief Inspector of Factories, 19 St. James's Square, London S.W.1. (8944)

REPUBLIC OF IRELAND

COMHAIRLE CONNDAE NA GAILLIMHE

Galway Regional Hospital (650 beds)

VACANCY FOR SENIOR HOUSE PHYSICIAN (ANAESTHESIA)

Application forms, and full particulars of above whole-time post, may be obtained from the Secretary, Galway County Council, County Buildings, Galway, to whom completed forms should be returned immediately. Remuneration: £820 for first year; £925 for second year. A deduction at the rate of £178 3s. per annum is made for emoluments provided in kind. This post is approved for D.A. Ireland and England and for F.F.A. Employment is for a period of 12 months in the first instance and may be extended. Facilities for postgraduate training include weekly departmental clinico-pathological conferences, clinical discussions, instruction in radiology and electrocardiography.—L. O'Luaniagh, Runai. (9030)

OVERSEA (Vacant)

A GYNAECOLOGICAL ASSISTANT IS NEEDED for a private practice in the East. Must be M.R.C.O.G., also willing to do minor surgery and general practice. Bachelor preferred. Very good salary, free quarters, motor-car, etc. Four months' leave, with air passages to and from U.K., alternate years. Early partnership for suitable man.—Box 1506, B.M.J.

ASSISTANT REQUIRED FOR GENERAL practice, male or female, in Canadian prairie practice soon as possible. Work includes surgery, obstetrics, etc. Good opportunity for intending emigrant wanting knowledge of conditions here. Fare paid, living accommodation and food provided. Send references and full details in first instance.—Reply to Box 1466, B.M.J.

CAPE PROVINCE. ASSISTANT REQUIRED. Contract 12 months, renewable. Salary £1,500 per annum, plus accommodation and car. Interviews in England up to March 12. Details from Medical Practices Advisory Bureau, B.M.A., Tavistock Square, London W.C.1.

DOCTOR, PREFERABLY WITH OBSTETRIC experience, wanted for group general practice in Singapore. Details on application. Interviews U.K. March onwards.—Box 1363, B.M.J.

EMIGRATING TO CANADA? POSITION available immediately as Assistant in busy group practice in Toronto suburb. Next Council's examinations in May. Will employ pending examinations. For details apply, giving background, to Box 1374, B.M.J.

FOR SALE. A LARGE GENERAL PRACTICE in Western Canada, with a large surgical, paediatric, and obstetric practice. Grossing $70,000 in 1959. Fully equipped office, including X-ray. Excellent lease. An assistant is at present employed.—Reply to Box 291, B.M.J.

INTERNIST CARDIOLOGIST. INQUIRIES invited from fully qualified Internists interested in joining a well-established specialist group located in a university city in Western Canada. All replies will be treated confidentially and answered promptly.—Box 1552, B.M.J.

LOCUM WANTED IN NEW ZEALAND SEASIDE town. Locum required from May till December, 1961, to take over general practice while practitioner on postgraduate leave. Replies to Dr. C. O. Crawford, 9 Shakespeare Terrace, Napier, New Zealand.

MALAYA. ASSISTANT TO START JULY, 1961, with view to partnership in about three years for three-partner practice in pleasant town west coast of Malaya. Salary £180 per month for six months, then £200 per month, with free furnished house. Apply, with full particulars, to Box 1551, B.M.J.

ONTARIO, CANADA. EXPERIENCED ASSISTANT wanted with view to partnership in large practice near Toronto. 65-bed hospital. Reply, giving details of training, experience, marital status, references and photograph, to Box 1489, B.M.J.

RHODESIAN MEDICAL PRACTICE FOR SALE. Old-established lucrative practice in Salisbury. Terms can be arranged. Net annual income over £5,000. Tastefully furnished or unfurnished modern house near university, with surgery attached, also available for purchase. For further details write to Box 1467, B.M.J.

A large copper mining company in Northern Rhodesia requires a

MEDICAL OFFICER

preferably qualified and experienced in Anaesthetics

The successful applicant will be required to administer anaesthetics in the Company's European and African hospitals and also perform some general medical duties. The hospitals comprise 450 beds and are very modern and well equipped with excellent laboratory, x-ray, operating, and physiotherapy facilities. They are staffed by ten medical officers and cater for approximately 35,000 Africans and 5,000 Europeans.

The basic salary will depend on qualifications and experience, but will not be less than £2,000 per annum. There is also a variable cost of living allowance, at present £60 per annum. In addition there is a Metal Bonus Scheme whereby employees share in the prosperity of the Copper Mining Industry. The present provisional bonus rate is 47½% of basic salary. There are also generous Life Assurance, Pension and Share Purchase Schemes.

Paid leave is at the rate of 51 days per annum, and may be accumulated for three years. In addition, up to five days' local leave may be granted each year.

A house, with basic furniture, is available at a nominal rent and a car provided for professional use.

Free passages are provided for the successful applicant and his wife and children.

The Mine is situated in the Copperbelt of Northern Rhodesia, where schooling, sport and recreational facilities are excellent. The summer is not unduly hot and general health conditions are very good.

Applications, giving particulars of age, qualifications and experience, should be sent to:

The Appointments Officer,
Mine Employment Department,
Selection Trust Limited, Mason's Avenue,
London, E.C.2.

Please Quote C.22.

WESTERN CANADA. ASSISTANT REQUIRED early summer. Experience in casualty and G.P. desirable.—Reply, with particulars, to Box 1465, B.M.J.

AMERICAN OIL COMPANY SITUATED IN Middle East seeks Assistant Medical Officer on one year's initial contract. Must be registered medical practitioner graduated in the United Kingdom or holding a qualification of one of the Royal Colleges. Experience must include minimum three years' general hospital work, practical experience modern anaesthetic technique and simple haematology. Age approximately 30 years and in first-class health. The applicant must be prepared to work in desert conditions with the minimum social amenities. Salary EAS.4,200 per month (approximately £2,500 per annum, with all found). Applications to Overseas Technical Services, 4 Lion Street, Kidderminster. (8998)

SHIP'S SURGEONS. CRUISING. APPLICATIONS are invited to fill the appointment of Senior Ship's Surgeon and Assistant Surgeon on a British passenger liner undertaking student cruising based on U.K. commencing end March, 1961. Student complement of 800 per voyage involved. Write to Personnel Department, B.I.S.N. Co. Ltd., One Aldgate, E.C.3, stating age, experience, and including copies of recent testimonials. (9108)

WANTED. DOCTOR TO TAKE CHARGE OF film location personnel in Jordan. Will be required to construct and supervise small infirmary. Duties to commence in February and end in the middle of June. Opportunity for interesting and exciting work. Salary by arrangement. Interested parties please contact Dr. David Sacks, CUNningham 0747.

CATHOLIC MISSION HOSPITALS. DOCTOR urgently needed for Nigerian hospital. Apply Secretary, Damien Medico-Missionary Society, 47 Fitzwilliam Square, Dublin. (8368)

MEDICAL OFFICER REQUIRED TO assist Senior M.O. at 70-bed general hospital under British administration in West Africa. Good medical, tropical diseases and surgical experience essential. Salary £2,300/£2,500, free accommodation, and private practice fees around £1,200 per annum. Write Box 1490, B.M.J.

ANAESTHESIOLOGY RESIDENCY. APPROVED two-year programme. State University of New York, Syracuse. Comprehensive clinical, didactic, and research programmes. Immediate appointment or July 1, 1961. Stipend $3,000 to $3,400, no maintenance. Graduate approved medical school who has passed E.C.F.M.G. Apply Allen B. Dobkin, M.D., Professor and Chairman, Department of Anesthesiology, University Hospital, Syracuse, New York. (8290)

ORTHOPAEDIC RESIDENCY. THERE IS ONE vacancy for a first-year Trainee in the Orthopaedic Department of the University Hospital, Saskatoon, commencing July 1, 1961. The candidate must have completed at least one year of approved general surgical training in order to be eligible. Salary $200 per month, plus $40 per month board allowance, plus $22.50 per month living-out allowance if maintaining family residence in Saskatoon. Apply Professor of Surgery, University Hospital, Saskatoon, Canada. (8749)

RESIDENCY IN INTERNAL MEDICINE. Englewood Hospital, Englewood, New Jersey, U.S.A. Excellent residency training programme in 300-bed community hospital located 10 minutes from New York City. Active schedule of teaching bedside rounds, lectures and conferences, utilizing visiting instructors and professors from various New York City medical colleges. Salary $295 monthly, married residents receive $70 extra. Living quarters, uniforms and laundry service provided. For details please contact Dr. M. R. Sheridan, 62 Queen Anne Street, Cavendish Square, London W.1. Tel. WELbeck 8626. (8635)

RESIDENT PHYSICIANS REQUIRED BY THE Hamilton Health Association, which operates the Mountain Sanatorium for Tuberculosis, the Chedoke General and Children's Hospital, and the Brow Infirmary for convalescent and chronically ill patients. Salary $300 per month gross. Term of appointment one to two years. Apply Medical Superintendent, the Hamilton Health Association, P.O. Box 590, Hamilton, Ontario, Canada. (8291)

RESIDENTS. APPOINTMENTS FOR BRITISH trained candidates are available in the approved residency training programmes of the Miners Memorial Hospital Association, in internal medicine, pathology, paediatrics and surgery. Stipends from $4,800 to $7,200, depending on year of training and dependents. For information write to the Clinical Director, 1427 Eye Street, N.W., Washington 5, D.C., U.S.A. (8214)

ROTATING INTERNSHIPS AND RESIDENCIES in Pathology available July 1, 1961. Fully accredited 500-bed general hospital on Lake Erie. First-year monthly salary $250, plus full maintenance. Full information will be furnished by the Director, Hamot Hospital, Erie, Pennsylvania, U.S.A. (8636)

ROTATING INTERNSHIPS. ENGLEWOOD Hospital, Englewood, New Jersey, U.S.A. Englewood Hospital is a 300-bed community hospital located just ten minutes from New York City. An excellent programme of bedside rounds, clinical conferences and lectures is offered, utilizing teachers from nearby New York medical colleges. The salary is $245 monthly, married interns receive $70 monthly. Living quarters, uniforms, and laundry service provided. For details please contact Dr. M. R. Sheridan, 62 Queen Anne Street, Cavendish Square, London W.1. Tel. WELbeck 8626. (8637)

Oversea (Vacant)—cont.d.

AUSTRALIA

MEDICAL SUPERINTENDENT
Peat and Milson Islands Mental Hospital, Hawkesbury River, New South Wales

Salary £3,850 per annum (Australian). Applications for the above-mentioned position are invited from male medical graduates holding a Diploma in Psychological Medicine or its accepted equivalent. The hospital is of 560 beds, housing male mental defectives, psychopaths, etc. Candidates must have had experience of some length in the care of mental hospital patients. Preference will be given to applicants with extensive experience with mental defectives. Proven administrative ability is essential, in the light of plans to further develop the hospital. Appointment on resident basis, residence provided at low rental. Four weeks' annual recreation leave, liberal sick leave, and extended leave benefits. Permanent appointment subject to medical fitness, with the right to contribute to superannuation fund with liberal pension rights. First-class sea passage to Sydney of successful applicant and family will be paid. Applications, accompanied by a photograph and the names of two referees, should be lodged at the office of the N.S.W. Agent-General, 56 Strand, London W.C.2, by February 7, 1961. (9088)

BAHRAIN GOVERNMENT MEDICAL DEPARTMENT

Applications are invited for the appointment of a
BRITISH SENIOR POLICE SURGEON
(uniformed-officer rank) for the medical supervision of police personnel and prisoners. Public Health in so far as it concerns outlying police stations and posts, and medico-legal work. There is a police clinic and small ward and he will have the support of a large modern equipped State Medical Service. Two years' contract, renewable on a scale of Rs.3,600 by Rs.100 to Rs.4,150 per month maximum (£3,240 by £90 to £3,735 per annum), no income tax. On appointment tourist air class passage with £10 extra baggage allowance plus £60 kit and heavy baggage allowance once. Similar air passage for wife when joining plus £20 heavy baggage allowance. Two half fares for children. Leave with pay at rate of 75 days per annum with similar passages. Rent-free flat or bungalow with hard furnishings and some air-conditioning. A very interesting post with increasing medico-legal and post-mortem work. Candidates should be British and of age group 35 to 45 years with R.A.M.C. experience. Applicants should send their testimonials, with photograph, to Commandant of Police, Police Headquarters, Bahrain. (8215)

BRITISH HONDURAS

Applications invited from doctors with qualifications registrable in United Kingdom and D.P.M. for appointment as Psychiatrist, Neurologist and Superintendent of Mental Hospital, Belize. Successful candidate would be Psychiatrist to Government of British Honduras and, as Superintendent of the Mental Hospital, would be responsible for its management, care of in-patients and out-patient clinics, consultation with Government medical officers regarding neurological ailments, and training of nursing and custodial staff. Salary £1,600 a year. In addition, an allowance of £175 a year is payable in lieu of private practice; or, as an alternative, officer may receive 50% of any specialist consultation fees charged by Government. Appointment on permanent basis with pension (non-contributory), subject to probationary period. Quarters provided at rental of 7½% of salary, subject to maximum of £120 a year. Furniture available at rental of 6% of value. Free passages for officer, wife and dependent children under 18 years, up to a maximum of five adult passages in all. Application forms from Director of Recruitment, Colonial Office, London S.W.1 (quoting 117/31/09). (9015)

GOVERNMENT OF BASUTOLAND

MALE MEDICAL OFFICERS

with qualifications registrable in the United Kingdom and preferably with two years' postgraduate experience required for general medical duties, including some surgery, midwifery, visits to local gaols, the performance of medico-legal post-mortems, and, possibly, taking sole charge of a District Hospital, each of which has an out-patient department. Appointment on contract for one tour of three years. Salary, including inducement pay, in the scale £1,136 to £1,848 a year, entry point determined by age and experience. Gratuity of 12½% of salary, plus inducement pay, on satisfactory completion of contract. Education allowances for children being educated outside the territory £120 for one child, £216 for two children, and £288 for three children, subject to fees equalling or exceeding these amounts. Private practice permitted, provided it does not interfere with officer's Government duties. Free passages for officer and family, up to a cost of five adult fares, on appointment and satisfactory completion of contract. Quarters will be available with basic furniture at 10% of basic salary and subject to a maximum rental of £125. Income tax at low local rates. Application forms from Director of Recruitment, Colonial Office, London S.W.1 (quoting BCD 117/76/01). (8972)

ARABIAN GULF SHEIKHDOM

GOVERNMENT OF QATAR—STATE MEDICAL SERVICE

SPECIALIST OPHTHALMOLOGIST

The Government of Qatar invite applications for the post of Specialist Ophthalmologist to take charge of the ophthalmic wards and Out-patient Department of the modern State Hospital at Doha, Qatar, in the Arabian Gulf. Applicants must have F.R.C.S. or equivalent, with adequate experience, and be available to take up duties at an early date.

SALARY will be in the range £4,500 per annum, with annual increments to a maximum of £5,400. Contract will be for five years or shorter period, with six months' probation.

NO INCOME TAX

Gratuity payable on completion of qualifying service.

Annual home leave of six days for each month on duty.

FREE air passages for applicant, wife and family. FREE high standard furnished accommodation, fuel, light, and water.

Conditions in this small and prosperous oil sheikhdom, which is so rapidly developing, now offer an attractive life for an applicant and his family. Full explanation of local conditions supplied on request.

APPLICATIONS, **in duplicate**, endorsed "Ophthalmologist," should be sent to: C. Tennant, Sons & Co., Ltd., 4 Copthall Avenue, E.C.2, giving full details of qualifications, experience, nationality, age, religion, marital status, names and addresses of three referees, and a recent, dated, photograph.

FALKLAND ISLANDS

MALE LOCUM TENENS

required for general medical duties during leave of Government Medical Officers. Candidates must possess qualifications registrable in United Kingdom. Appointment on agreement for 18 months, or from National Health Service with retention of superannuation rights and gratuity (taxable) of 20% of aggregate salary. Salary £1,380 per annum, rising by annual increments of £30. Education allowance payable. Furnished quarters provided. Free passages for officer, wife and family, up to 3½ passages in all, although single or unaccompanied man preferred. Low income tax. Application forms from Director of Recruitment, Colonial Office, London S.W.1 (quoting BCD 117/50/02). (8971)

GOVERNMENT OF THE FEDERATION OF RHODESIA AND NYASALAND
Ministry of Health

VACANCY—SPECIALIST SURGEON (Junior)

The salary is £2,575 per annum, fixed. The duties involve a great variety of work in the general and specialty fields under supervision of a Senior Specialist Surgeon. Applicants must hold qualifications in medicine and surgery registrable in the Federation, and must be Fellows of one of the Royal Colleges of Surgeons in the United Kingdom or equivalent qualification granted elsewhere.

Liability to transfer anywhere in the Federation. No private practice, but allowance in lieu of consultant practice paid. Family passages paid, pension, transport, generous leave, good schools—free tuition. Low income tax. Excellent climate. Sports and recreation facilities.

Promotion to Senior Surgeon posts subject to vacancies.

United Kingdom: Write Secretary (R), Rhodesia House, 429 Strand, London W.C.2, for application forms and further information.

Overseas: Write Secretary for Health, P.O. Box 8093, Causeway, Salisbury, Rhodesia and Nyasaland. Closing date February 25, 1961. (9064)

H.H. THE AGA KHAN PLATINUM JUBILEE HOSPITAL, Nairobi

Applications are invited for the post of
SENIOR HOUSE OFFICER IN OBSTETRICS AND GYNAECOLOGY

The appointment is for one year, and the successful candidate will be required to be resident. Salary £1,300 per annum, less a charge of £150 per annum for residential emoluments. Special arrangements for continuing contributions to the National Health Service Superannuation Scheme. Applicants should have had one year's experience in obstetrics and gynaecology. Applications, giving full details of qualifications and experience, together with the names and addresses of two referees, should be sent at once, by airmail, to the Administrator, P.O. Box 30270, Nairobi, Kenya, East Africa, from whom further details may be obtained. (9089)

McKELLAR GENERAL HOSPITAL
Fort William, Canada

ASSOCIATE RADIOLOGIST (Diagnostic)

required for a 450-bed general hospital in a twin city of about 85,000 population. Modern, well-equipped X-ray Department, with excellent working conditions. Four weeks' vacation yearly. Salary will be according to qualifications and experience, but not less than $15,000 a year for specialist qualification. Yearly increments up to $20,000. Not above 40 years of age. State all particulars in the first letter. Apply to Radiologist, McKellar General Hospital, Fort William, Ontario, Canada. (9109)

NEWPORT HOSPITAL
Newport, Rhode Island, U.S.A.

INTERNSHIPS

For appointment July 1, 1961. 228-bed voluntary general hospital. U.S. Department of State's Exchange-Visitor Programme No. P-11-645. Eight one-year Internships approved by American Medical Association (prerequisite for specialty residency). Internship rotates trainee through supervised services in medicine, surgery, obstetrics, paediatrics, anaesthesia, pathology and radiology. Remuneration $100 per month (approximately £35 16s. 8d.). Board, room and uniforms provided, two weeks' paid vacation. Travel allowance. For interns who are married the stipend is $150 per month, and separate living quarters are provided. All applicants must have successfully passed the E.C.F.M.G. examination, with proficiency in the use of English. Education programme conducted by Alex M. Burgess, M.D., Sc.D., F.A.C.P., Director of Medical Education. Write airmail to William K. Turner, Director, for descriptive pamphlet, application blank, and personal advice re travel, immigration regulations, etc. (5641)

PITTSFIELD AFFILIATED HOSPITALS
Pittsfield, Mass., U.S.A.

RESIDENT IN PATHOLOGY

A.M.A. approved programme with interns and residents in all major specialties. The hospitals are affiliated with Albany Medical College and provide a total of 450 teaching beds. The successful applicant will work principally in the Pittsfield General Hospital in a large new air-conditioned main building with all new laboratory services. Pittsfield is the centre of a year-round vacation area with all summer and winter sports. Salary $325 per month, plus room and board, with $25 per month annual increases. There is a living-out allowance of $25 per month for married residents. Certification by the Educational Council for Foreign Graduates required. Apply Dr. W. Beautyman, Pathologist, Pittsfield General Hospital, Pittsfield, Mass. (8747)

ROYAL COLUMBIAN HOSPITAL
New Westminster, British Columbia, Canada

ROTATING INTERNSHIPS

Appointments available. Fully accredited general hospital of 434 beds and 51 bassinets, in the heart of a fast-growing industrial and agricultural area. Honorarium $250 (gross) per month. Applications should be addressed to the Hospital Director. (7498)

UNIVERSITY COLLEGE, Ibadan, Nigeria

Applications are invited for
(i) SENIOR LECTURESHIP and
(ii) LECTURESHIP IN ANAESTHETICS
to be assumed as soon as possible. Posts carry honorary consultantships to University College Hospital. Candidates must hold F.F.A., and for (i) must have had more than five years' experience in the specialty and preferably teaching experience. Applications can be considered from candidates able to arrange secondment from National Health Service for short periods, e.g., one to three years. Salary scales (i) £2,350 by £100 to £2,950 per annum, (ii) £2,200 by £100 to £2,600 per annum. Passages paid for appointee, wife, and up to five children under 11 years, on appointment, annual overseas leave and termination. F.S.S.U. Part-furnished accommodation at rent not exceeding 7.7% of salary. Children's, car and outfit allowances. Detailed applications (10 copies), naming three referees, by March 6, 1961, to Secretary, Senate Committee on Colleges Overseas in Special Relation, University of London, Senate House, London W.C.1, from whom further particulars may be obtained. (9009)

Oversea (Vacant)—contd.

TOP-FLIGHT POSTS in the
ROYAL AUSTRALIAN AIR FORCE

★ Short Service Commissions as Medical Officers for four years, with possible three-year extension and excellent prospects for transfer to permanent commission.

★ Opportunities for selected officers to attend full-time refresher and postgraduate courses, and to undergo flying training. Duties at stations and hospitals in tropical, subtropical, and temperate regions.

★ Rank on appointment: Flight Lieutenant (higher ranks for those with special qualifications).

★ Pay and allowances (Australian currency):

	Single	Married
Flight Lieutenant	**£A.2.053 2s. 6d.**	**£A.2.326 17s. 6d.**
Rising to a maximum of ..	**£A.2.302 15s. 0d.**	**£A.2.576 10s. 0d.**
Squadron Leader	**£A.2.450 1s. 3d.**	**£A.2.723 16s. 3d.**
Rising to a maximum of ..	**£A.2.837 17s. 6d.**	**£A.3.111 12s. 6d.**
Wing Commander	**£A.2.979 6s. 3d.**	**£A.3.253 1s. 3d.**
Rising to a maximum of ..	**£A.3.367 2s. 6d.**	**£A.3,640 17s. 6d.**

★ Free first-class passages for officer, wife and family; pay commences on embarkation. Gratuity on leaving Service after four years: £A.500. Contributory pension scheme compulsory. Contributions refunded in full at end of short service commission.

★ Applicants must be qualified male British medical practitioners, aged between 23 and 40 (45 in special circumstances).

★ Immediate application is strongly advised. Write now for full particulars and application forms to the Royal Australian Air Force, Australia House, Strand, London W.C.2.

THE GOVERNMENT OF NORTHERN NIGERIA

requires a Lecturer on favourable contract terms to teach science subjects to pharmacy students.

Qualifications: B.Sc. (Chemistry and Biology). A teaching diploma is desirable, but not essential.

Emoluments: 1. Salary. On an incremental scale in the range of £972 to £2,046, entry point according to experience.
2. Outfit allowance of £45 on first appointment.
3. Resettlement grant of £25 or £37 10s. for each three months' service inclusive of earned leave, payable on satisfactory completion of contract.
4. Children's allowance of £120 for one child, £216 for two, and £288 for three children, eligible up to the age of 18 years.
5. Passages for officer and wife on appointment and on leave, and assistance towards cost of children's passages.

Leave: Generous home leave on full pay.

Applicants should write to:
The Recruitment Secretary (Overseas),
Northern Region Recruiting Agency,
Nigeria House,
9 Northumberland Avenue,
London W.C.2,
or telephone TRAfalgar 1244. Extension 145.

THE OTAGO HOSPITAL BOARD
Dunedin, New Zealand

DIRECTOR OF OUT-PATIENT AND REHABILITATION SERVICES

Applications are invited from medical practitioners for the position of Director of Out-patient and Rehabilitation Services. Applicants must be qualified for the status of Senior or Junior Specialist as defined in the Hospital Employment (Medical Officers) Regulations, and set out in the Conditions of Appointment for the position. The salary will be determined, within one of the following scales, in accordance with the qualifications and experience of the appointee: Rate from April 1, 1961, Senior Specialist, Scale (b) £2,800/£3,100, Scale (c) £2,450/£2,800; Junior Specialist £1,900/£2,300. The appointee's main duty will be as Director of Out-patient Services, and he will be the leader of the team concerned with the rehabilitation of the sick and injured. Travelling expenses will be paid in accordance with the information contained in the Conditions of Appointment, which together with the prescribed Form of Application may be obtained from the Office of the High Commissioner for New Zealand, 415 The Strand, London, or the undersigned. Applications, together with testimonials and names of referees, health and chest certificates, should be in the hands of the undersigned not later than 10 o'clock a.m. on Monday, March 6, 1961.—W. A. Williamson, Secretary, Otago Hospital Board, P.O. Box 946, Dunedin, New Zealand. (9012)

THE GRIFFIN HOSPITAL
Derby, Connecticut, U.S.A.

ROTATING INTERNSHIPS FOR 1961-2

Fully accredited 186-bed general hospital with active teaching programme. Approved by A.M.A. Located near New York City. E.C.F.M.G. certificate required. Stipend $200 a month, plus room and board. Travel allowance $300. Write, Director of Medical Education. (8292)

UNIVERSITY COLLEGE, Ibadan, Nigeria

Applications are invited for two posts of
MEDICAL OFFICER
in College Health Service. Appointments commencing as soon as possible. Salary scale £1,750 by £100 to £2,550 per annum. Passages paid for appointee, wife, and up to five children under 11 years, on appointment, overseas leave and termination. Children's, car and outfit allowances. F.S.S.U. Part-furnished accommodation at rent not exceeding 7.7% of salary. Detailed applications (six copies), naming three referees, as soon as possible, to Secretary, Inter-University Council for Higher Education Overseas, 29 Woburn Square, London W.C.1, from whom further particulars may be obtained. (9008)

UNIVERSITY OF ADELAIDE

The University invites applications for the following new posts in the Faculty of Medicine:
READERS IN CHILD HEALTH AND IN ENDOCRINOLOGY
SENIOR LECTURER IN OBSTETRICS AND GYNAECOLOGY

Salary scales: Reader £A.2,950 by £A 70 to £A.3,230; Senior Lecturer £A.2,450 by £A.90 to £A.2,900, with superannuation on the F.S.S.U. basis. Appointments in the Faculty of Medicine carry special allowances for registrable medical qualifications. The initial salary may be fixed within the appropriate scale in accordance with the successful candidate's qualifications and experience. Further information: (a) The Calendar of the University may be consulted in the library of any University which is a member of the Association of Universities of the British Commonwealth, or at the office of the Association. Inside the covers are plans of the University buildings and site. (b) A potential candidate for any post should also seek from the Registrar of the University or from the Secretary, A.U.B.C., 36 Gordon Square, London W.C.1, the following documents: (i) General Conditions of Appointment, which include particulars of tenure, superannuation, removal expenses, invalidity and study leave; (ii) a statement giving further particulars of each post, and of such matters as help in housing, conference grants, and special support for research. (c) The University will gladly supply any further information desired on request to the Registrar. Applications, in duplicate, should give the information listed in the final paragraph of the General Conditions of Appointment, and should reach the Registrar, the University of Adelaide, Adelaide, South Australia, not later than February 28, 1961. (9062)

UNIVERSITY OF MALAYA IN SINGAPORE

Applications are invited for the
CHAIR OF ORTHOPAEDIC SURGERY
Salary between £2,268 and £2,548 per annum, at fixed point determined by qualifications and experience (plus clinical allowance of £700 per annum). Allowances: expatriation £378 per annum, cost of living (temporary) in range £210 to £560 per annum. Passages for appointee, wife and children under 12 years. Partly furnished house/flat at reasonable rent. Provident fund scheme. Detailed applications (eight copies), naming three referees, by March 31, 1961, to Secretary, Inter-University Council for Higher Education Overseas, 29 Woburn Square, London W.C.1, from whom further particulars may be obtained. (9063)

U.S.A., DOCTORS HOSPITAL
Cleveland 6, Ohio

200-bed general hospital offers approved two-year General Practice Residencies training programme, including Medicine, Surgery, Paediatrics, Obstetrics, and the subspecialties. Stipend $250 to $300 per month, plus full maintenance. $1,000 bonus at end of second year. Apply John E. Allen, M.D., Director of Medical Education. (7645)

VICTORIA HOSPITAL, London, Ontario, Canada

950-bed teaching hospital associated with the Medical School of the University of Western Ontario, has vacancies for
JUNIOR ROTATING INTERNS
on or about June 15, 1961. Appointment one year, with honorarium of $150 per month, plus room, board and laundry. Regular teaching rounds. Pleasant city. Applications, with letters of reference, to Superintendent. (8748)

WAIKATO HOSPITAL BOARD
Hamilton, New Zealand

WHOLE-TIME PATHOLOGIST
for Rotorua Hospital

Applications are invited from suitably qualified medical practitioners for the position of whole-time Pathologist at Rotorua Hospital. The salary will be that applicable to a Junior Specialist, i.e., £1,900 to £2,300 per annum, and the commencing rate within this scale will be determined by the Medical Officers' Salaries Grading Committee as constituted in accordance with Hospital Employment (Medical Officers) Regulations. Conditions of appointment and official application forms are available on application to the office of the High Commissioner for New Zealand, 415 Strand, London W.C.2, and applications will close with the Secretary, Waikato Hospital Board, P.O. Box 934, Hamilton, New Zealand, on Friday, April 28, 1961. (9006)

OVERSEA (Wanted)

G.P., 38, BRITISH AND CANADIAN REGISTRATIONS, wide experience, including 18 months' Obstetrics, at present principal private practice, Canada, desires Locum or other temporary position in any foreign country, excluding North America.—Box 1508, B.M.J.

WANTED, INTERESTING JOB. AUSTRALIAN graduate travelling to England early 1962 will break off for any interesting job for up to six months. Three years' Sydney teaching hospital experience covering all branches. Special interests Anaesthetics and Obstetrics. Wife also graduate.—Box 1507, B.M.J.

YOUNG SINGLE GENERAL PRACTITIONER. Anglican, experienced anaesthetics, obstetrics, supervision mission hospital, seeks position home or abroad. Available December.—Box 1519, B.M.J.

UNIVERSITY AND RESEARCH APPOINTMENTS, etc.

CAMBRIDGE UNIVERSITY
Department of Pathology

Applications are invited for the post of
JUNIOR ASSISTANT PATHOLOGIST
to Addenbrooke's Hospital from April 1, 1961. The appointment will give experience in all branches of hospital pathology. Appointment for one year, renewable up to three years. Stipend, under review, at present commences £920 per annum, with increments to £1,212. Applications to the Secretary, Department of Pathology, Cambridge, before February 17, 1961. (8743)

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

Applications are invited for the post of
RESEARCH MEDICAL REGISTRAR
at the West Middlesex Hospital and Barnet General Hospital. The appointment is for work on trials of diet in coronary thrombosis. The post will be for about six sessions, divided between the two hospitals, and will be for one year in the first instance. It is thought that this appointment would be particularly suitable for a married woman doctor. Applications and enquiries should be addressed to the Hospital Secretary, West Middlesex Hospital, Isleworth, Middlesex, not later than February 10. (8769)

University and Research Appointments, etc.—contd.

CHARING CROSS HOSPITAL MEDICAL SCHOOL

Applications are invited for the post of
RESEARCH FELLOW IN OBSTETRICS AND GYNAECOLOGY
to work within the Professorial Unit at Charing Cross Hospital Medical School and Fulham Hospital. The salary will be on the scale of Lecturer (£1,350 to £2,200), and the appointment will be for three years in the first instance. Applicants must be medically qualified and have experience in clinical research. The successful applicant will be encouraged to develop his own research programme as well as assisting with research work of other members of the unit. Applications, including the names of two referees, should be sent to the Secretary, Charing Cross Hospital Medical School, 62-65 Chandos Place, London W.C.2, within 14 days of the appearance of this advertisement. (8999)

ROYAL COLLEGE OF PHYSICIANS Edinburgh

KIRK DUNCANSON FELLOWSHIP FOR MEDICAL RESEARCH

The Council of the Royal College of Physicians, Edinburgh, will award a Kirk Duncanson Research Fellowship of the value of £1,000 per annum for two years, to commence on April 1, 1961. Applicants, who should state the nature of the proposed research and the place where it is intended to carry it out, must send their applications before February 28, 1961, to the Secretary, Royal College of Physicians, 9 Queen Street, Edinburgh 2. (9123)

THE BURDEN NEUROLOGICAL INSTITUTE Stapleton, Bristol

The Management Committee invite applications for the post of

DIRECTOR

The Director is responsible for supervising the research carried out at the Institute. He will be in clinical charge of the 26 beds. Knowledge and experience of both neurology and psychological medicine is essential. Salary between £3,000 and £4,000 per annum, according to qualifications. Applications, giving age, details of experience, and the names of two referees, should be sent to the Secretary, Burden Neurological Institute, Stoke Lane, Stapleton, Bristol, by February 14. (9136)

THE UNIVERSITY OF LEEDS Department of Chemical Pathology

Applications are invited for appointment of
ANALYST
in the Department of Chemical Pathology. The post is comparable with the National Health Service Basic Grade Biochemist, and includes work in the hosital biochemistry laboratory, with opportunity for research and study towards a higher degree. Salary on the scale £710 by £30 to £860 by £35 to £1,000 a year, according to age, qualifications and experience. Candidates should have at least a second-class degree in chemistry or biochemistry, or considerable experience in analytical chemistry. Applications (three copies), stating date of birth, qualifications and experience, together with the names of three referees, should reach the Registrar, the University, Leeds 2 (from whom further particulars may be obtained), not later than February 25, 1961. (9021)

UNIVERSITY OF DUBLIN Trinity College

LECTURER IN SOCIAL MEDICINE

Applications are invited for the post of Lecturer in Social Medicine. Duties to be taken up as soon as possible. The appointment will be for three years in the first instance. Salary in the range £1,710 by £47 10s. to £1,900, with membership of a non-contributory superannuation and life assurance scheme, and with marriage and child allowances. Applications (four copies), giving full particulars of academic career and the names and addresses of three referees, should reach the Registrar, Trinity College, Dublin, from whom further particulars may be obtained, not later than February 18, 1961. (9138)

UNIVERSITY OF EDINBURGH Department of Public Health and Social Medicine

Applications are invited for the post of
SENIOR LECTURER IN MEDICAL STATISTICS
The successful applicant, who need not be a graduate in medicine, will be expected to take part in the establishment of a Statistics Unit for the Faculty of Medicine, although based in the Department of Public Health and Social Medicine. Salary scale £2,050 by £100 to £2,425 per annum, with placement according to qualifications and experience, and with superannuation benefit and family allowance where applicable. Further particulars may be obtained from the undersigned, with whom applications (six copies), giving the names of two referees, should be lodged not later than April 1, 1961.—Charles H. Stewart, Secretary to the University. (9014)

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL (University of London) University Street, London W.C.1

BEIT MEMORIAL FELLOWSHIPS FOR MEDICAL RESEARCH

Notice is hereby given that an election of Junior Fellows, to begin work on October 1 next, will take place in May, 1961. Junior Fellowships have successive annual values of £900, £950, and £1,000 for three years. As a rule, superannuation benefits are provided, to which the successful candidates will be required to contribute 5% of the annual stipend and to which the Trust will make a contribution of 10%. Candidates must have taken a degree in a faculty of a university approved by the Trustees in Her Majesty's Dominions, Protectorates, and Mandated Territories, India, Pakistan, and the Republic of Ireland, or a medical diploma registrable in the United Kingdom. Elections to Junior Fellowships are rarely made above the age of 35 years. Applications from candidates must be received not later than April 1. Candidates must submit evidence that they can be given accommodation in the departments where they propose to work, which must be either in Great Britain or Ireland. Forms of application and all information may be obtained, by letter only, addressed to Sir Roy Cameron, F.R.S., Beit Memorial Fellowships for Medical Research, University College Hospital Medical School, University Street, London W.C.1. For overseas candidates forms of application may be obtained from the Secretary, South African Medical Council, P.O. Box 205, Pretoria, South Africa; the Ministry of Health, the Government of India, New Delhi, India; the Government of East Pakistan, Eden Buildings, Ramna, Dacca, East Pakistan; the Director, Commonwealth Office of Education, Box 3879, Sydney, Australia; the Department of Health, Wellington, New Zealand; and the Canadian Medical Association, 244 St. George Street, Toronto, Canada. (8964)

UNIVERSITY OF GLASGOW

LECTURESHIP IN PATHOLOGY at Western Infirmary

Applications are invited for a Lectureship in Pathology at the Western Infirmary. Salary according to placement on University scale for clinical teachers. The final maximum is £2,350 per annum. F.S.S.U. and family allowance benefits. Applications (12 copies) should be lodged, not later than March 3, 1961, with the undersigned, from whom further particulars may be obtained.—Robt. T. Hutcheson, Secretary of University Court. (9137A)

UNIVERSITY OF GLASGOW

SENIOR LECTURESHIP OR LECTURESHIP in Pathology of Infectious Diseases

Applications are invited for a Senior Lectureship or a Lectureship in Pathology of Infectious Diseases. Salary according to placement on University scale for clinical teachers. The final maximum is £2,350 per annum for Lecturers, and £3,200 per annum for Senior Lecturers. F.S.S.U. and family allowance benefits. Applications (12 copies) should be lodged, not later than March 3, 1961, with the undersigned, from whom further particulars may be obtained.—Robt. T. Hutcheson, Secretary of University Court. (9137)

UNIVERSITY OF LONDON (British Postgraduate Medical Federation) INSTITUTE OF NEUROLOGY, Queen Square

KNOOP

Applications for this Fellowship (which may be held for up to seven years) are invited from medical or science graduates. The Fellow will work in the Department of Chemical Pathology and will be engaged in the study of the degenerative neurological disorders of the central nervous system, especially those of a hereditary or familial nature. The commencing salary will be in the region of £1,200 per annum, depending upon qualifications and experience. Further details of the nature and scope of the research may be obtained from Professor J. N. Cumings, at the Institute of Neurology (Queen Square), the National Hospital, Queen Square, London W.C.1. (9000)

SCHOLARSHIPS

DICKINSON SCHOLARSHIPS

Applications are invited for a Travelling Research Scholarship in Medicine, to the value of not more than £1,500, tenable for one year. Candidates, who must be graduates of a University in the United Kingdom, must have done their clinical training as students of the Manchester Royal Infirmary. Copies of the regulations governing the Scholarships may be obtained from the undersigned, to whom six copies of application should be sent not later than February 28, 1961.—G. H. Heaton, Secretary to the Dickinson Scholarship Trustees, Manchester Royal Infirmary, Manchester 13. (9110)

AMENDED ADVERTISEMENT

NUFFIELD ORTHOPAEDIC CENTRE Headington, Oxford

GIRDLESTONE MEMORIAL SCHOLARSHIP

The trustees invite applications from suitably qualified persons for this Scholarship, valued at £750 per annum, tax free, plus living out allowance of £180 per annum. Applications, giving full personal details, together with the names of two referees, should be received, fourteen days after the appearance of this advertisement, by the undersigned, from whom full particulars can be obtained.—John Mullins, Secretary to the Trustees. (9031)

REPLIES TO BOX NUMBER ADVERTISEMENTS

The names and addresses of advertisers using box numbers are held by us in strict confidence and cannot be disclosed. Applications should be separately enclosed and clearly addressed:

Box No. .....
British Medical Journal,
B.M.A. House,
Tavistock Square, W.C.1.

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PERSONAL

ADOPTION. SYMPATHETIC AND CONFIDENTIAL help and advice.—Church Adoption Society, 4a Bloomsbury Square, W.C.1. HOL 3310. Secretary, Mrs. P. Heynert, A.M.I.A.

NOTICES

APPLICANTS ARE ADVISED NOT TO SEND original testimonials when replying to advertisements. Copies will answer the purpose quite as well, and in the event of their being lost or mislaid no inconvenience will ensue.

FACULTY OF ANAESTHETISTS of the ROYAL COLLEGE OF SURGEONS OF ENGLAND BOARD OF FACULTY ELECTION

Attention is drawn to the fact that on the Notice which appeared under this heading on January 20, 1961, the date of Fellowship shown for Dr. Harold Kenneth Ashworth was incorrect. The correct date is 1948.—R. S. Johnson-Gilbert, Secretary, Lincoln's Inn Fields, London W.C.2.

EDUCATIONAL AND LECTURES

CORRESPONDENCE COACHING FOR THE London and Edinburgh M.R.C.P. We help with the clinical too.—Write J. Arnold, 189 Regent Street, W.1.

POSTGRADUATE STUDY.—Diploma in Anaesthetics; Diploma in Psychological Medicine; Diploma in Ophthalmology; Diploma in Radiology; Diploma in Laryngology; Diploma in Child Health; M.R.C.S.Ed. and all Surgical Examinations. M.R.C.P.Lond. and all Medical Examinations. M.D. thesis of all Universities. Courses for all qualifying examinations. Complete Guide to Medical Examinations sent free on application. Applicants should state in which qualification they are interested. Address Secretary, Medical Correspondence College, 19 Welbeck St., London W.1.

TRAINING SERVICE FOR MEDICAL PRACTITIONERS

THE FAMILY PLANNING ASSOCIATION arranges Training Courses throughout Britain as follows:

PART 1

Three lectures:
(a) Contraceptive Technique.
(b) The Sub-Fertile Couple.
(c) Sex Difficulties in Marriage.

PART 2

Practical work at F.P.A. Training Clinics.

London: February 23; March 20; April 27, 1961.
Manchester: February 18, 1961.
Birmingham: March 16, 1961.
Glasgow: April 21, 1961.

Application forms and details from:
The Medical Secretary,
F.P.A., 64 Sloane Street,
London S.W.1.

Educational and Lectures—contd.

UNIVERSITY OF ST. ANDREWS

POSTGRADUATE MEDICAL EDUCATION

COMBINED CLINICAL AND MEDICAL SCIENCES COURSE

Graduates in Medicine and Surgery are invited to make application for a combined Clinical and Medical Sciences Course to be held in Queen's College, Dundee, from October, 1961, to March, 1962.

All those taking the Combined Clinical and Medical Sciences Course will have:

(1) A clinical attachment in the special subject of their choice. In 1961-62 the following subjects will be offered:

GENERAL SURGERY	HAEMATOLOGY	PSYCHIATRY
GENERAL MEDICINE	INFECTIOUS DISEASES	OPHTHALMOLOGY
CARDIOLOGY	RESPIRATORY DISEASES	OTO-RHINO-LARYNGOLOGY
CARDIO-VASCULAR SURGERY	OBSTETRICS	ORTHOPAEDICS
ENDOCRINOLOGY	GYNAECOLOGY	RADIOLOGY
DERMATOLOGY	PAEDIATRICS	

(2) A supervisor who would guide their reading and laboratory work in relation to the specialty, and (3) A.d would attend the medical sciences course.

The number accepted for this educational programme will be small and only one or at the most two candidates will get an attachment in each special subject.

The Eastern Regional Hospital Board will give the successful candidate an honorary clinical assistantship within the Unit where he is studying the special subject of his choice.

The Supervisor will not only guide the reading and laboratory work of the student but will in appropriate cases allow him to take part in current research programmes.

The objective of the medical sciences course which all the postgraduates, whether medical, surgical, or other specialists, will follow is to bring the postgraduate student up to date on current trends in the medical sciences which are of importance to future medical developments.

In addition to this course, the Medical School offers weekly open postgraduate lectures by distinguished visitors and a course of lectures on scientific methods which postgraduate students in the school will be free to attend.

The fee for the course will be £36. Applications should be submitted before September 1, 1961, to the Dean of the Faculty of Medicine, University of St. Andrews, Queen's College, Dundee, from whom further information may be obtained.

POSTGRADUATE COURSE IN ANATOMY AND PHYSIOLOGY

Graduates in Medicine and Surgery are invited to make application for a Course in Anatomy and Physiology (including Biochemistry) to be held in the pre-clinical Departments of St. Salvator's College, University of St. Andrews, from October, 1961, to March, 1962.

The number of graduates accepted for this course will be small. They will be attached to, and expected to take some part in, the work of the Anatomy and Physiology Departments.

Instruction will be given, formally and informally, in systematic, practical, and applied aspects of Anatomy, Physiology, and Biochemistry, and students will be afforded opportunity of gaining experience in methods to be individually selected. They will be required to take part in the tutorial discussions both with members of staff and with medical undergraduates, and to make themselves familiar with current teaching.

The Anatomy Department is responsible for the teaching of Histology, and has particular interests in Bone, Arthrology, Heart, and Central Nervous System.

The Department of Physiology and Biochemistry operates a course in Applied Physiology and Biochemistry for senior medical students, and is equipped to supervise techniques in Neurophysiology and Neurochemistry, Protein and Carbohydrate Chemistry, and various aspects of Medical Biophysics.

The fee for the course will be £36. Applications should be submitted before September 1, 1961, to the Dean of the Faculty of Medicine, University of St. Andrews, Queen's College, Dundee, from whom further information may be obtained.

CARDIAC SYMPOSIUM, FRIDAY MARCH 17, 4.30 to 7.30, Royal College of Physicians, Edinburgh. Fee, including afternoon tea and sherry, one guinea. Details from the Chest and Heart Association, 65 Castle Street, Edinburgh 2. (8959)

DIPLOMA IN PUBLIC HEALTH

A full-time course of instruction, covering three academic terms, will commence in October, 1961. The fee for the full course is £68. Application forms may be obtained from the Medical Postgraduate Dean, the University, Bristol 8, and should be lodged as soon as possible.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

COURSE IN OCCUPATIONAL HEALTH

A three months' whole-time course in Occupational Health will be held at the London School of Hygiene and Tropical Medicine, commencing next on September 25, 1961. It is for registered medical practitioners who desire training or a refresher course in this subject. For those who hold the D.P.H. it will provide the additional requirements for entry to the D.I.H.(England). The fee (including registration fee) is 30 guineas. Applications must be received not later than April 1, 1961, by the Registrar, London School of Hygiene and Tropical Medicine, Keppel Street (Gower Street), London W.C.1, from whom further particulars may be obtained. The number of places is strictly limited. (8966)

POSTAL COACHING FOR ALL MEDICAL EXAMINATIONS. Examination successes, 1946-59: M.R.C.P. Lond., 227; F.R.C.S.Eng., Final, 363; M. and D.Obst.R.C.O.G., 428; D.A., 342; D.C.H., 242; University or Conjoint Finals, 730; Up-to-date courses for the above and for the Primary F.R.C.S., M.R.C.P.Edin., F.R.C.S.Edin., D.P.H., F.F.A., D.P.M., D.O., D.L.O., D.I.H., D.T.M.&H., D.M.R.D. and D.M.R.T. (Part 2). Assistance with M.D. thesis. Prospectus, list of tutors, etc., on application to G. E. Oates, M.D., M.R.C.P.(Lond.), University Examination Postal Institution, 17 Red Lion Square, London W.C.1. 'Phone HOLborn 6313.

BRITISH POSTGRADUATE MEDICAL FEDERATION (University of London)

COURSE IN PAEDIATRICS FOR GENERAL PRACTITIONERS

will be held at University College Hospital on February 18 and 19, 1961. Applications to the Secretary, Paediatric Department, University College Hospital, Gower Street, W.C.1. (9061)

FACULTY OF ANAESTHETISTS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

COURSES ON ANAESTHETICS

A course of lectures, demonstrations and tutorial discussion groups for postgraduates preparing for higher diplomas in anaesthetics will be held from April 10 to 21, 1961. A similar course will be held from October 9 to 20. Fees: Lectures and demonstrations £15 15s.; tutorial discussion groups £10 10s. Further details and application forms may be obtained from Mr. R. S. Johnson-Gilbert, M.A., Secretary, Faculty of Anaesthetists, Royal College of Surgeons of England, Lincoln's Inn Fields, London W.C.2 (Tel. HOLborn 3474, Ext. 23). (8965)

GLASGOW POSTGRADUATE MEDICAL BOARD

COURSES FOR GENERAL PRACTITIONERS

It is proposed to hold three courses for general practitioners during 1961: two-week refresher course, May 15 to 27: one-week refresher course, September 18 to 23; course in dermatology, June 19 to 24. The fees for the refresher courses are 10 guineas and 5 guineas respectively, and for the course in dermatology 5 guineas. N.H.S. practitioners will be eligible for grant under the usual conditions. The numbers admitted to the courses are limited, and application should be made as soon as possible to the Director of Postgraduate Medical Education, The University, Glasgow W.2. (9111)

GLASGOW POSTGRADUATE MEDICAL BOARD

COURSE IN GERIATRIC MEDICINE

A course in Geriatric Medicine will be held at Foresthall Hospital, Glasgow, from May 29 to June 2, 1961. The course will be intensive, and is designed for all doctors who have a special interest in Geriatric Medicine. It will consist of lectures, clinical demonstrations, and discussion groups, and will be under the direction of Dr. Ferguson Anderson and his staff. The course will deal with social factors and the general pattern of disease in the elderly; mental conditions, incontinence, and cerebrovascular disease; pre-retirement training, preventive medicine, and the organization of a Geriatric Service. The fee for the course is £5 5s., and cheques should be made payable to "The University of Glasgow." Form of application may be obtained from the Director of Postgraduate Medical Education, the University, Glasgow W.2. (9007)

SOCIETY OF APOTHECARIES OF LONDON.—Medicine and Surgery: March 13, April 10, May 8. Midwifery and Pathology: March 14, April 11, May 9. Mastery of Midwifery: May and November. Diploma of Industrial Health: July and December. For regulations, apply Registrar, Apothecaries' Hall, Black Friars' Lane, London E.C.4.

THE DENTAL AND MEDICAL SOCIETY FOR the Study of Hypnosis. The Society will hold two Study Groups on the "Theory and Practice of Hypnosis" for dental and medical practitioners in February and March. On February 20, 1961, a series of eight consecutive Monday and Thursday evening lectures will begin at 8 p.m. This full course will cover the use of hypnosis in dental and psychological fields and will include individual tuition on the technique of hypnosis. On March 25/26, 1961, an intensive week-end study group will be held in London for those members who live too far away to attend the evening lectures on the full course. Medical practitioners are invited to apply to the Secretary, 63 Twyford Abbey Road, London N.W.10, for further details. (8640)

UNIVERSITY OF LONDON

THE ROGERS PRIZE
(Nathaniel Rogers: administered by the University of London)

The Rogers Prize, of the value of £100, will be offered by the Senate in 1962, for an Essay or Dissertation on the following subject: The Causes and Results of Arterial Thrombosis in Man. The Prize is open to all persons whose names appear on the *Medical Register* of the United Kingdom. Applications must be submitted to the Secretary to the Scholarships Committee, University of London, Senate House, London W.C.1 (from whom further particulars can be obtained), not later than April 30, 1962. (8946)

UNIVERSITY OF LONDON

A lecture entitled **"Nature Experiments on the Maintenance of Pregnancy"** will be delivered by Dr. A. Csapo (New York) at 5 p.m. on February 13 at University College Hospital Medical School (Lecture Theatre No. 1), University Street, W.C.1. Admission free, without ticket.—James Henderson, Academic Registrar. (8945)

SITUATIONS VACANT

St. John's and Manor House Hospital Management Committee

St. John's Hospital, Stone, Aylesbury, Bucks

Psychiatric Social Worker or Social Worker

Applications are invited for the post of Psychiatric Social Worker or Social Worker, to work with the Psychiatric Social Worker at St. John's Hospital, a psychiatric hospital with 865 beds and an extensive out-patient service. Candidates must hold a certificate approved by the Association of Psychiatric Social Workers or a Social Science Diploma or degree in Social Science. Salary in accordance with the Whitley Council scales. Applications, with two names for reference, to the Physician Superintendent, St. John's Hospital, forthwith. (8805)

Staffordshire General Infirmary, Stafford

Senior I Technician and Biochemist

(Basic grade) required for Department of Pathology. Applications, with names for reference, to Secretary, Stafford H.M.C., 22b Greengate Street, Stafford. (8476)

Situations (Vacant)—contd.

Pharmacologist required, to work in London for the first two years in academic department and thereafter in a newly created research laboratory in London. Non-contributory pension and life assurance scheme and excellent salary. Scope for promotion. Write, giving full details of age, qualifications and experience, to the Managing Director, Biorex Laboratories Ltd., 47/51 Exmouth Market, London E.C.1.

DISPENSERS, SECRETARIES, ETC.

VACANT

Medical Secretaries supplied and wanted for permanent and temporary vacancies with doctors and hospitals.—M. & S. Agency, 32 Queen Victoria Street, E.C.4. CIT 7131.

Wanted Dispenser, female (qualified), bookkeeper, for private practice. Apply, with references, to Drs. Duncan and Maclure, 38 Bridge Street, Evesham, Worcs.

AVAILABLE

Copy typing and proof reading all medical literature by experienced medical secretary. Moderate terms.—Apply Miss M. R. Black, 98 Cambridge Road, Hounslow, Middlesex.

Doctor's daughter, 32, requires clerical work, some typing. Residential.—Box 1488, B.M.J.

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